WHO CHRONICLE

VOL. 15, No. 3 - MARCH 1961

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WORLD HEALTH ORGANIZATION

Trends in public health nursing

In the developed countries an increased burden is being placed on the nursing profession by the growing complexity of medical services, treatment and equipment; the demand for nurses is thus rising just at a time when the supply is falling off as a result of the availability elsewhere of better-paid jobs in better working conditions. In the less developed countries the demand for nurses is enormous; but the supply is restricted by the limited number of candidates with sufficient education, by unwillingness to allow women to become nurses, by the low status of nursing, and above all by the lack of money to pay them.

This crisis in the nursing profession has led to a reappraisal of the functions of nurses. Auxiliary workers are being used to a greater extent for many nursing tasks, e.g., in Brazil, the locally recruited visitadora sanitária *has done a great deal to meet nursing needs in rural areas, where her knowledge of local conditions has proved a great advantage. In some countries there are special categories of personnel. In France, the* assistante sociale *acts both as a family adviser and as an adviser of organizations serving the individual and the community. In the USSR, well over 300 000 "feldshers"—occupying a place somewhere between the doctor and the nurse—work in rural and industrial health centres, hospitals, etc.*

Since its inception WHO has been particularly concerned with the need for more and better facilities to prepare nurses and midwives for public health work. It has helped to establish regular public health nursing courses in a number of countries, and has also paid special attention to the training of auxiliary workers. In this connexion, the Organization has assigned nurse educators and administrators to countries in various parts of the world. These international nurses are often faced with special problems of adjustment to unfamiliar customs and attitudes, and their work requires a very close study of the communities they serve, as well as outstanding qualities of flexibility, sympathy and understanding.

PUBLIC HEALTH NURSING

A modern definition of public health is that quoted by a WHO Expert Committee on Public Health Administration that met in 1951:

". . . the science and art of preventing disease, prolonging life, and promoting mental and physical health and efficiency through organized community efforts for the sanitation of the environment, the control of communicable infections, the education of the individual in personal hygiene, the organization of medical and nursing services for the early diagnosis and preventive treatment of disease, and the development of social machinery to ensure to every individual a standard of living adequate for the maintenance of health, so organizing these benefits as to enable every citizen to realize his birthright of health and longevity." [1]

This definition is characteristic of the present-day broad social and educational approach to public health, an approach that is also reflected in the attitude to one of its integral parts, public health nursing. According to a WHO Expert Committee on Nursing that met in 1958, public health nursing:

". . . combines the skills of nursing, public health, and some phases of social assistance, and functions as part of the total public health programme for the promotion of health, the improvement of conditions in the social and physical environment, rehabilitation, the prevention of illness and disability. It is concerned for the most part with care of well families and with non-hospitalized sick persons and their families, with particular groups of people, and with health problems that affect the community as a whole. Because of the traditionally close relationship between nurses and the families they tend, public health nursing frequently serves as the channel by which many other public health and community services are brought to the public." [2]

Since the end of the Second World War there has been, as well as this wider approach, another development in public health nursing: an unprecedented growth in medical and health services throughout the world, which has created a general shortage of nurses. The situation resulting from this shortage and the new, less restricted approach to nursing have led to attempts to re-assess the whole subject of public health nursing in the light of modern needs. A new publication in the WHO *Public Health Papers* [3] contains a series of articles reviewing some aspects of public health nursing and describing how nurses are trained, what work they are used for in various parts of the world, and how they have been partly replaced in some countries by auxiliary workers.

The nursing profession and auxiliary personnel

In the less developed parts of the world nurses are in short supply for a variety of reasons. For example, nursing may, for social or other reasons, be disapproved of as a career. But the commonest reason is not that nurses are disliked or that nursing is looked down upon but that there is not enough money available to pay for their training and services; if the money is forthcoming, there will be sufficient applicants. In the more developed countries the situation is different. A steady stream of new drugs pours out from the manufacturers every year; surgical techniques grow more elaborate; equipment increases in complexity and amount; more is expected of nurses, and more is delegated to them by the medical profession. At the same time medical care grows more comprehensive: the poorer classes of the population receive attention they formerly could not afford and did not have; the number of hospitals and institutions rises; there are more health examinations, baby clinics, antenatal clinics, inoculations; and the population goes on increasing. The demand for nurses rises *pari passu* with the

[1] Winslow, C.-E. A. (1923) *The evolution and significance o the modern public health campaign*, New Haven, p. 1 (Quoted in *Wld Hlth Org. techn. Rep. Ser.*, 1952, **55**, 5).

[2] *Wld Hlth Org. techn. Rep. Ser.*, 1959, **167**, 4.

[3] World Health Organization (1961) *Aspects of public health nursing* (*Publ. Hlth Papr*, No. 4), Geneva. This publication will be referred to below and in subsequent footnotes simply as *Aspects of public health nursing*.

increasing population and the increasing volume of health services. But the supply lags behind, because on the one hand nursing is a profession that is relatively poorly paid, and requires long training, a sense of vocation, and considerable physical resistance to testing hours and conditions of work, and on the other it is exposed at the present time to much competition from other jobs where the pay is better and the conditions of work much easier.

What possible solutions are there to this problem? E. L. Brown in the new WHO publication states that " Society can ill afford . . . to permit nurses (any more than physicians) to engage in duties that other persons can be trained to do as well." [4] Two steps have been and are being taken. The organization of work has been changed to relieve nurses of responsibilities that they used to have, such as the serving of meals; and the introduction of escalators, tubes, and electric dumb waiters, and the creation of messenger services have simplified the nurse's physical task of getting from place to place and taking equipment about. In this category of improvement may be ranked attempts at altering the physical environment—the arrangement of wards, clinics, etc.—to enable staff to be used to the greatest advantage. The other main step forward has been the employment on an increasing scale of auxiliary personnel —such as practical (or vocational) nurses, orderlies, nursing aides or attendants, and ward maids. This has not been done in any systematic way:

" Even where routine duties have supposedly been reassigned to others, one can still see nurses writing notes that could be more quickly dictated, answering unimportant telephone calls, ordering routine supplies, and dispensing not only the dangerous drugs but simple medications like aspirins . . . "

The trouble is—E. L. Brown continues—that a basic policy of integrated nursing care is lacking. What exactly should nurses and nursing assistants do? How can their tasks be co-ordinated so as to give patients the best possible care? Most nurses come to their work trained primarily to carry out technical procedures, but these are the very things that auxiliary personnel can pick up best in the shortest time. Unfortunately the nursing profession has as yet made no effort to take advantage of this situation so as to increase the effectiveness of both nurses and auxiliary personnel, by breaking down the psychological resistance of nurses to the acceptance of auxiliaries as members of the nursing team with a distinct and valuable role to play. Isolated attempts have been made to integrate nurses and auxiliaries into a well-balanced team, with varying success, but what is required is fresh examination of the kind of nursing care that should and can be given in existing economic, social and psychological conditions, constant experiment with patterns of recruiting, training, and integrating assistants into the nursing service, and extensive discussion of the problems involved.

The question of auxiliary personnel crops up constantly throughout *Aspects of Public Health Nursing*. M. Mackenzie [5] points out that in many countries where nursing is at an early stage of development factors such as the standard of education and the status of women and of nursing make it inevitable that nurses should be in short supply and their place largely occupied by auxiliary workers. Many of the things that the public health nurse does she must therefore delegate to others, so that she has more time to do the things that only she has the training to do. At the same time she must remain responsible for the care of the patient. In hospital the patient is to some extent protected from any failure on the part of the auxiliary worker by the presence of the rest of the staff; but in public health nursing, where the work is done is homes, schools and clinics, there is not the same insurance against error or negligence. Consequently the nursing team and the work it does must be planned with the utmost care; functions must be clearly defined; and the public health nurse must be trained for her role as team leader. When each member of

[4] Brown, E. L. *The nursing profession and auxiliary personnel.* In: *Aspects of public health nursing*, p. 13.

[5] Mackenzie, M. *The team in public health nursing.* In: *Aspects of public health nursing*, p. 35.

the team knows exactly what his or her position in it is and what he or she is expected to do, the nurse will not see the auxiliary as a threat to her, or feel that she herself is not doing many things she ought to be doing. Instead she will see the auxiliary as someone with whose assistance she can do better the things she wants to do; and the auxiliary will see her as someone who will give guidance and help, not as someone who leaves her to do only the unpleasant or routine jobs.

The problem of ensuring that each member of a nursing team does the work for which he or she is best fitted and does not overlap with others is essentially a problem of administration. H. Finer, a well-known expert on administration, contributes a paper on the public health nurse and administration.[6] He points out that, in every form of associated human endeavour, " every person . . . is part of the chain of persons responsible for the successful results ". In other words, there is " an administrative chain, leading downwards from those with most responsibility . . . through which the sense of purpose must be imparted ". The public health nurse, even at the lowest level, must learn her place in the hierarchy, the standard of quality or attainment required of her, and how she is involved in the planning of the nursing services. Finer goes on to say that " it would be valuable if public health nurses applied these elements of administration to their own personal role and analysed them more minutely and vividly as a spur to further advances ".

The nurse and health teaching

Health teaching is an integral aspect of nursing, and has nearly always been recognized as such by writers on nursing, although it may not have been practised as often as it should have been. Two papers in *Aspects of Public Health Nursing* deal with teaching.[7] M. L. Shetland and A.M. Maglacas point out that many people tend to consider the nurse in terms of specific services and to ignore the part she can play in teaching them to safeguard the health of their families. The nurse is limited not only by what patients expect of her but also by the expectations of her co-workers, and her health teaching will be affected by the value people place on health, their attitude to the inevitability of illness and its place in human life, and their ideas about the family group, the community, and the urgency of health problems. Consequently she must have some understanding of these factors, be aware that the social and economic background, the independence of mind of the patients, and the degree of urgency attached to health problems all will influence what she can do or say.

To teach about health successfully the nurse must be able to keep up with advancing knowledge and adjust herself to it. She must understand that knowledge, to be usable, must be related to the interests and needs of those to whom it is being imparted. She must be able to distinguish between health practices that need to be changed and practices that are not really of importance. Not only, therefore, will she need to know about human behaviour and needs and how people see their needs, but she will also have, as an essential preliminary, to understand herself. The nurse who sees herself as an authoritarian figure will fail to perceive her patients' needs, and merely tell them what to do or at most explain; and so will fail to break down the barriers between the knowledge she has and its application in the improved health of the people. The ideal attitude is not a dogmatic one, but rather one of " caring and sharing ". If the nurse listens to, encourages, and gives moral support to the patient when it is needed, the patient gets the impression that she really cares; and in this situation the sharing of knowledge becomes effective. And as it is with the individual so is it with the group: laying down the law as a remote and superior person will have little or no effect in persuading people to change bad health practices for good.

The implications of the " caring and sharing " attitude for the teaching of nursing are considerable. Obviously the student nurse

[6] Finer, H. *The public health nurse and administration.* In: *Aspects of public health nursing*, p. 121.

[7] Shetland, M. L. & Maglacas, A. M. *The nurse's responsibility for health teaching*, and Murphy, M. *Group teaching in public health nursing.* In: *Aspects of public health nursing*, pp. 42 and 56.

will reflect the atmosphere in which she has been trained: if she has been taught in a dogmatic, authoritarian way she will herself tend to be dogmatic and authoritarian. She must be taught in a way that will develop her self-respect, self-awareness, and sensitive regard for other people.

But not all nurses are temperamentally equipped to teach groups. It would be better —in the opinion of M. Murphy—to select those who obviously are so equipped and give them special training, such as the course developed experimentally by the Child Study Association of America. This course consisted of 13 weeks of theory and a period of field work practice, in which trainees—qualified public health nurses with at least two years' experience—conducted parent discussion groups under the auspices of their local health departments but with supervision by Association staff. With such training it should be possible for public health nurses to abandon the stereotyped presentation of a health subject that is so commonly taken at present to be health teaching and concentrate on the needs that bring people to a group and how best to satisfy them.

The training of public health nurses

A number of contributions to *Aspects of Public Health Nursing* deal with the training of public health nurses in various parts of the world. In the USA [8] the nursing faculty is often attached to a university, not to a hospital. This independence gives nursing a dignity of its own, but at the same time raises a number of questions—about the relationship, for example, between the faculty and the hospitals and public health agencies upon which it must rely for practical training facilities. Much stress is laid upon the role of the public health nurse in the team. The programme set at the University of California is ambitious:

"... the exploration, study and evaluation of the principles and concepts of community health nursing and of the role of the nurse as a family health worker; and the transmission of the specific knowledge and abilities essential for the effective functioning of the community health nurse. Contributory objectives are: the exploration of the scope of community health nursing and study of the forces that influence it significantly; the investigation of present patterns of community health nursing organization and administration; the study of selected community health programmes and their nursing services in relation to major health needs; the acquisition of insight and ability to identify and analyse family and community health needs in homes, schools, and industry, and ways of participating in community health projects; the development of ability to identify and analyse the role of the community health nurse in co-operation with others as a member of an agency public health team or as a member of a community health and welfare team; the acquisition of some understanding of the motives of individuals or groups in action for health, and of a community's interest in and readiness for action that will bring needed change in community nursing services; the development of insight into the complex effect of the health of one member of the family on other members and on the family as a whole, and into what is involved in total family counselling and in the application of professional knowledge; the provision of opportunity to develop the capacity for professionally and scientifically sound independent judgements; the encouragement of a working philosophy of positive health; and the provision of opportunities to collaborate with the medical and other professions concerned with health."

In other parts of the world the school of nursing is not a university faculty. In Nigeria,[9] for example, as in the United Kingdom, it is part of the hospital, although it has a good deal of freedom to plan and control the students' practical training and develop as an educational institution. An important aim at Ibadan is to raise the standards of nursing throughout Nigeria and to prepare the students for the important part they will have to play in the planning and administration of nursing services and nursing education in a newly independent and fast developing country. Health teaching forms part of every home visit, and, as an audience quickly gathers, it is usually group as well as individual teaching. Nigeria is a country of mixed tribal patterns, in which a minority of the popula-

[8] Brown, D. S. & Taylor, M. S. *Public health nursing in the basic curriculum.* In: *Aspects of public health nursing*, p. 65.

[9] Bell, L. M. *A modern school of nursing in Nigeria.* In: *Aspects of public health nursing*, p. 106.

tion is moving quickly from a traditional to a modern pattern of culture. It is essential that this minority, which includes nurses, should retain a sympathetic understanding of the beliefs of the majority, and realize that new teaching can frequently be grafted on to the old without upset. This problem, which is common among the less well developed nations, is fully appreciated in the nursing school at Ibadan.

In Nigeria there has as yet been little difficulty in recruiting girls of suitable character and education for the nursing profession. Not so in Brazil,[10] where suitably educated girls of the middle and upper levels of society do not readily enter the nursing profession. Consequently, when the Ribeirão Prêto School of Nursing was founded, it was decided to provide a basic programme that would, among other things, help the student to understand the social contribution of the professional nurse. The objectives of this school, which forms part of the Faculty of Medicine of the University of São Paulo, include the inculcation of understanding and appreciation of people as members of families in the community, of ability to identify the needs of the patient and meet as many of them as possible within the framework of the hospital and community, and knowledge and understanding of the principles of administration, teaching, and supervision that will serve as a guide to administrative, teaching, and supervisory practice in the hospital and public health nursing service. But there are not enough nurses for the needs of a vast and poorly developed country like Brazil. The Special Public Health Service, a co-operative enterprise of the Brazilian and US Governments that has been functioning since 1942, decided therefore that specially trained auxiliaries should be used for direct contact with the public, fully qualified nurses being employed mainly in organization, in training, and in supervision. The work and training of this auxiliary worker, the *visitadora sanitária*, are described in another paper,[11] and the problems to which they give rise are discussed.[12]

A special type of auxiliary worker in the medical field exists in the USSR.[13] This worker is known as the feldsher, and an extensive system of feldsher and feldsher-midwife centres has been developed in rural Russia as the primary medical establishments of the countryside.[14] Feldshers are, like nurses, medium-grade medical personnel, and occupy a place somewhere between doctors and nurses. In the USSR the curative and preventive services are integrated, and nurses therefore carry out a good deal of preventive work in addition to their usual tasks, medical examinations, educational activities, and epidemiological work. Every nurse—there is only one category—must graduate from a medical school for nurses. This school is not part of a hospital, but an independent teaching establishment, the hospitals merely being used for practical training. The teaching staff, however, includes hospital doctors.

Other contributions to *Aspects of Public Health Nursing* discuss the role of the midwife in public health [15] and of the *assistante sociale* [16] (social worker) of France—who act as an intermediary between families and individuals on the one hand and social and medico-social institutions on the other, teaching the former how to find their own solutions to their social and medical problems.[17] Finally, there is a discussion of the problems faced by international nurses sent to countries of totally different culture from their own.[18]

[10] Alcântara, G. de, *Comprehensive nursing education through a basic programme.* In: *Aspects of public health nursing*, p. 85.

[11] Faria Alvim, E. M. J. de, *The* visitadora sanitária*: a Brazilian approach to the use of auxiliary public health workers.* In: *Aspects of public health nursing*, p. 163.

[12] See article on page 88.

[13] Ashurkov, E. D., Zhuk, A. & Lisitsin, Y. *The work and training of feldshers and nurses in the USSR.* In: *Aspects of public health nursing*, p. 152.

[14] See article on page 86.

[15] Wood, A. *The role of the midwife in public health.* In: *Aspects of public health nursing*, p. 128.

[16] Turpin, Y. *The* assistante sociale *in France.* In: *Aspects of public health nursing*, p. 143.

[17] See article on page 84.

[18] Read, M. *Customs and culture : problems of nursing services in cross-cultural situations.* In: *Aspects of public health nursing*, p. 173 (see article on page 90).

THE ASSISTANTE SOCIALE IN FRANCE *

The first social services in France date from the beginning of the twentieth century, though they are linked to an older tradition that owes much to the work of St Vincent de Paul in the seventeenth century.

While social legislation in France is of comparatively recent date, it may be noted that, when setting up his model dispensary in 1901, Professor Calmette stressed the importance of domiciliary investigation and envisaged a district service offering preventive and curative care, i.e., combined medical and social action.

Round about the same time, the first social welfare homes were set up in the suburbs of Paris, and the nurses of the newly formed maternal and child welfare service began visiting young mothers and sick children. Then, between 1917 and 1928, the Rockefeller Mission gave an impetus to the development of medico-social services, in particular for children and tuberculosis patients. During the First World War, hospital social services were organized by the American Red Cross.

Today, the *assistante sociale*, or social worker, with technical training, undertakes a whole range of social and medico-social duties. She is both a family adviser and an adviser of organizations serving the individual and the community. This difficult dual role is the essential characteristic of the French social worker: she acts as an intermediary between individuals and the family on the one hand and social and medico-social institutions on the other; and she teaches these individuals and families how to find their own solutions to their medical and social problems. It should be stressed that she does not undertake home care, except in very exceptional circumstances and with special authorization.

* This article is based on Turpin, Y. *The* assistante sociale *in France*. In: *Aspects of public health nursing*, p. 143.

The social worker's job

What exactly does the social worker do? This depends on whether she works in a health centre, a social centre, or on district duty. The health centre gives medical and social advice to adults and children, provides premises for remedial exercises, holds clinics, runs parents' classes, and may organize household help, etc. The social worker attached to a medico-social centre helps the doctor who gives consultations, getting everything ready for him, keeping records, preparing reports, making home visits to see that his recommendations are being carried out, enlisting the help of other services and organizations, and arranging for the patient's transfer for treatment or rehabilitation.

The district social worker looks after the families in a prescribed area, urban or rural, and her basic duties are home visiting and clinic duty. She may also help in vaccination sessions, in school hygiene consultations (when the specialized service is absent), or at district committees, health education conferences, first-aid or child welfare courses, and in the organization of children's holiday camps, kindergartens, and the like. In her home visiting, she assists families to deal with all their health, school, psychological, professional or economic difficulties, and, when necessary, gets into touch with other social agencies or the authorities to find the best means of solving their problems. Local needs will determine the emphasis given to each of these tasks.

Her many-sidedness is an advantage in gaining the confidence of families who might resent the intrusion of a series of visitors each claiming to deal with one or other of their difficulties.

The general social worker also does maternal and child welfare work, looks after the expectant mother, arranges for pre-natal consultations, visits the home after the birth

to follow up the mother and the baby, gives advice, and takes whatever action is needed in an emergency. Other important branches of medicine with which the social worker is concerned are tuberculosis, cancer, and mental health. She carries out the doctor's instructions in cases of tuberculosis, particularly on the protection of the patient's family from infection, and the prevention of relapses. She pays the patient visits at suitable intervals, tries to reduce his feeling of inferiority and, by making him feel that she sees him as a person, not as a case, enlists his co-operation in his own rehabilitation into his family and the community. In mental health she must have a good groundwork of theory and practice, and be able to listen well, give advice tactfully, keep in contact with families and the school or professional background, and remain in close touch with the mental health centres, psychiatric hospitals, etc. She has an important role to play in the care of the aged and the rehabilitation of the injured, and has been given a prominent position in institutions set up to restore handicapped persons to an active place in the community.

Finally, she sometimes takes a part in administrative planning (either because of her personal qualifications or because she has been appointed to some body concerned with planning), or in research, such as that encouraged by WHO and carried out under the auspices of the International Children's Centre and the National Institute of Hygiene.

Training of social workers

The state does not carry out the training of social workers, but authorizes, regulates, and supervises it. To be admitted to the schools, students must be between 19 and 36 years of age and have reached secondary school-leaving certificate standard. Their intellectual and social qualities are assessed before entry, during a probationary period, and constantly during the course; and they may at any time be excluded from the course if their qualities are adjudged inferior to the standard required.

The course lasts 3 years.[1] The first year, as for student nurses, consists of medical studies; the next two of social and medico-social studies, including social legislation and basic principles of psychology, psychiatry, sociology, demography, and law. In addition to theory, there are practical work—study circles, investigations, case discussions, and visits—and probationary work. Probationary work is most important, since it initiates the student into social work and at the same time reveals whether she can adapt herself to it. In the first year it takes up 10 months (8 months of medical and 2 of social work); in the two final years, 16 half-time months, supervised by qualified instructors in close touch with the school. Probationary work covers children's welfare, industrial health, rural and hospital services, the social diseases (tuberculosis, the venereal diseases, cancer, mental disorders), family allowance fund services, social security, domiciliary services, institutional services, etc.

The training course is carried on in both public and private State-recognized schools. Private schools are fee-paying, but State scholarships exist, and exhibitions and scholarships are also awarded by other local bodies and institutions in return for a pledge of service. Students who have completed the course and are aged at least 21 may take the examination for the State diploma, which is held twice a year. Special certificates are granted to those who spend an additional 6 months in the study of rural or overseas problems.

About half of the social workers now registered possess both the State nursing diploma and that of *assistance sociale*, and have thus completed 4 years of preparatory study.

Names of social workers are entered annually in a register kept in each administrative district or department. They are required to register their qualifications in the area where they practise, and must re-register on transfer to another department or on resuming work after a lapse of 2 years. They are bound by professional secrecy.

[1] It cannot be combined with a job or taken by correspondance

Existing legislation helps to ensure co-ordination of all the social services.

There are at present about 16 000 social workers in France. Almost 10 000 of them are in the medico-social services, which cover not only hospitals but every type of medical establishment. The rest work mainly in the departmental social hygiene service set up by the Government for maternal and child care, the prophylaxis of mental disorders, and the campaigns against tuberculosis, venereal disease, alcoholism and cancer.

It will be seen from this that the social workers have many and diverse functions to fulfil. They no longer work alone but in close co-operation with technicians, doctors, midwives, psychologists, educators and others. Since such teamwork is now usual, the social worker requires a wide general medical background, a sound technique, a broad outlook, knowledge of research methods, a gift of self-expression, and a firm basis of professional ethics.

THE FELDSHER IN THE USSR*

Auxiliary medical workers in the USSR are known as "medium-grade medical personnel", and include midwives, nurses, laboratory assistants, dental technicians, and others who have their counterparts elsewhere in the world. "Feldshers"—who do not have an exact parallel elsewhere—comprise one of the two main groups of medium-grade medical personnel (nurses being the other). Though feldshers have existed in Russia since the eighteenth century, it was not till the nineteenth century, with the development of the Zemstvo public health services, that they came into prominence. In the Zemstvo services, the feldshers helped the doctors and on occasion replaced them. In some rural areas they gave medical assistance to the people, working independently of the physician; in others, the amount of their assistance depended on the Zemstvo physician supervising them.

The feldsher system was retained after the October Revolution of 1917. As the training of medical workers expanded to meet the needs of the country, so the system of feldsher schools and of feldsher and feldsher-midwife centres was gradually extended. Whereas in 1913 there had been about 29 000 feldshers in Russia, in 1958 there were 343 300 feldshers, feldsher-midwives and feldsher-sanitarians.

The feldsher and feldsher-midwife centres are the primary medical establishments of the medical districts into which the whole rural area of the USSR is divided, and work under the guidance of the chief physician in each district. There are about 74 000 of these centres. As a rule, each collective or state farm is served either by a hospital or out-patient department or by a feldsher centre.

The feldsher and feldsher-midwife centres provide out-patient treatment to the people living in their area, give first-aid in acute illness and accidents, and help with childbirth in the home. When the diagnosis is doubtful or medical intervention is required, the patient is referred to the rural or rayon hospital; in emergency cases, when the patient cannot be moved, a doctor is sent for. When the physician in charge of the rural medical district comes on one of his regular visits, the feldsher shows him all the patients he thinks should be seen by a qualified doctor. The feldsher maintains records of expectant mothers and babies and keeps them under observation. He makes a regular examination of children in schools, crèches, kindergartens and camps. He sees that patients suffering from tuberculosis or other diseases who are on the books of the local hospital attend at the proper time. He reports cases of infectious disease. He performs vaccinations against smallpox, typhoid fever, dysentery, diphtheria, and measles, and makes routine inspections of water supplies, public baths,

* This article is based on: Ashurkov, E. D., Zhuk, A. & Lisitsin, Y. *The work and training of feldshers and nurses in the USSR.* In: *Aspects of public health nursing*, p. 152.

dairy farms, food shops, catering establishments, schools, children's homes and other premises. He carries out systematic health education of the population—by talks and readings of health literature, in clubs, reading rooms, schools, hostels and field camps. Usually the centre has a pharmacy attached, a branch of the nearest rural pharmacy; this is run by the feldsher, who sells medicines and other medical goods to the public and receives a percentage of the takings (medicines for patients treated in hospital or at outpatient departments and antituberculosis drugs being free). The feldsher also supervises the many voluntary workers who carry out door-to-door visits, talk to the public, find out what people are running a temperature, help carry out prophylactic inoculations, and conduct campaigns for cleanliness outside and inside the home.

There are also feldshers on the staff of rural rayon and rural district hospitals, in industrial health centres, first-aid stations, mental hospitals, sanitary and epidemiological centres, and elsewhere. In the industrial health centre the feldsher works under the guidance of the physician at the hospital serving the industrial undertaking, or independently if the undertaking is small. He gives first-aid to cases of accident or sudden illness, sending those who need more specialized treatment to the polyclinic or hospital. He sees that newly employed workers and others who for one reason or another need surveillance are duly medically examined. He ensures observance of the laws on labour protection and the provisions about health in the collective agreements. He gives inoculations. He makes sure that measures to combat epidemics are taken. He keeps an eye on the state of the workshops, canteen, etc., observing whether the workers are keeping the rules of personal hygiene and using the safety equipment provided. He trains the workers in first-aid, gives health instruction, and organizes health volunteers.

The feldsher-sanitarian, who has had wider training in hygiene and epidemiology than his fellows, works as assistant to the state health inspectors and environmental sanitarians. He examines smaller premises in the food industry, in industry in general, and in the municipal services, reporting any shortcomings. On the instructions of the state health inspector he takes samples of food, water, soil or other substances for expert examination. He sees to the observance of state health decrees and regulations, carries out epidemiological investigations of individual cases of infectious disease, and is responsible for disinfection and disinsection, and for checking to ensure the effectiveness of these measures. He too imparts health education to the public. He keeps health records and provides statistics.

Feldshers are trained at special schools. Those who have had a full secondary school education receive 2½ years' training; those who have not receive 4. The amount of time spent on the course is apportioned as follows:

	%
Theoretical training	68.0
Student and in-service practice	10.5
Examinations	5.5
Holidays	16.0

Of the total of 4896 hours set aside for theoretical training, 1224 (24.9%) are devoted to general subjects, i.e., Russian language and literature, the local language (if other than Russian), history of the USSR, mathematics, physics, chemistry, and a foreign language. General medical subjects—biology, anatomy, histology, physiology, microbiology, pathological anatomy and physiology, pharmacology and prescribing, hygiene, health administration and Latin—take up 988 hours (20.2%). Special subjects take up the rest of the total teaching time, 54.9% or 2684 hours. They include the general care of the sick, obstetrics and gynaecology, medical and surgical conditions, infectious diseases, children's diseases, skin and venereal diseases, mental disorders, ophthalmology, ear, nose, and throat diseases, epidemiology, physiotherapy, massage, and remedial physical culture.

Practical work on clinical subjects takes up 1174 hours. In addition, the student works as a sanitary orderly for 2 weeks during his first year, in a hospital (learning the care of the sick and technical procedures) for 4 weeks during his second year, and as a nurse in a hospital or polyclinic for 5 weeks during his third year. At the end of his last year he

spends 10 weeks on actual practice in rayon and district hospitals and in feldsher-midwife centres.

Because of the training in general subjects that they receive in feldsher schools, graduates have a secondary education that qualifies them to enter establishments of higher medical education. In these establishments preference is given to applicants who have practical experience. For many students, training as a feldsher is therefore a stepping-stone to a higher medical education.

THE VISITADORA SANITÁRIA IN BRAZIL *

In the more highly developed countries the auxiliary worker is usually a member of a team and carries out nursing work that has been delegated to her. In the less developed countries, where there is as a rule a great shortage of nurses, she is often responsible for the whole of the nursing care given, with only periodical supervision by a more qualified person. This is the position in Brazil, a vast country in which nursing needs could not be met at all if only qualified nurses were used; so that what qualified nurses there are occupy mainly supervisory and administrative posts or help in education, the burden of actual nursing falling on the auxiliary worker.

In 1942 the Brazilian and US Governments set up a Special Public Health Service (SESP) in Brazil. At first engaged on a scheme for sanitation and the control of malaria in the Amazon basin, it has, through agreements with private and public agencies, extended its activities to cover most of the interior of the country, and now administers 169 public health units, 51 sub-units, and 14 mixed units (combined hospital and public health centres). As well as increasing in size, it has also expanded its activities to include rehydration centres, blood banks, soybean milk stations (in places where fresh milk is non-existent or too expensive), food supplements, the care of premature babies, tuberculosis clinics, and housing improvement.

From the beginning of the SESP it was obvious that trained personnel in sufficient numbers for the rapidly expanding services would be difficult to find, and it was decided that fully qualified nurses should be used for organization, training programmes, and supervision, specially trained auxiliary workers being responsible for direct services to the public. These auxiliary workers are known as *visitadoras sanitárias* (health visitors). Nowadays nurses also give direct nursing care in the larger SESP units, but in most of the smaller localities it is still the *visitadora sanitária* who is responsible.

The *visitadora* helps in the sanitation and communicable disease control programmes, passes on health information, visits schools and other places the SESP physicians ask her to visit, and carries out immunizations. She calls on expectant mothers and homes with newborn babies, infants, and sick children, refers them to the SESP clinic, and continues to visit them as long as is needed. She keeps in touch with the lay midwives, organizing them into groups to which she can give simple instruction on health habits, hand-washing techniques, the care of the midwifery bag and equipment, the care of the cord, the prevention of ophthalmia neonatorum, and the care of mother and child after delivery (instruction on the conduct of delivery is given by the SESP doctor). In the afternoons, when it is too hot for domiciliary visiting except in emergencies, she helps in the SESP clinic, giving elementary instruction, helping with urinalysis, developing group activities, etc. She also helps collect health data, and she may assist in epidemiological studies.

Training of the visitadora sanitária

Candidates for the course are recruited locally, and as a rule there are an interview.

* This article is based on: Faria Alvim, E.M.J. de, *The visitadora sanitária: a Brazilian approach to the use of auxiliary public health workers.* In: *Aspects of public health nursing*, p. 163.

a written examination, and a personality test. Whenever possible the candidate's home background is assessed by a visit, and as a further precaution local people of importance such as the teacher, the judge, and the priest are asked about her.

Usually the training course lasts 6 months, and until recently it was held under a boarding-house system that encouraged housekeeping and healthy living habits. In the beginning it was essentially a shortened nursing course in which formal instruction played a main part, though SESP field units were used to provide practical experience. Some years ago, however, the curriculum was reorganized into four comprehensive units based on the theory of unitary learning. These are as follows:

I. Orientation to the function of *visitadora sanitária*.
   - A. Public health as a profession.
   - B. The community—the field of action of the *visitadora*.
   - C. The individual as a person.
   - D. Learning as a means of adaptation.

II. The human being as a living being.
   - A. The human being as a living, reacting organism.
   - B. The human body—how it maintains its form.
   - C. How the human being is kept alive.
   - D. How the human being enters into contact with the outside world.

III. The commonest diseases affecting the human being and how to prevent them.
   - A. The physical environment and how it influences living conditions.
   - B. Role of the *visitadora* in communicable disease control in general.
   - C. Communicable diseases that can be controlled by sanitary measures.
   - D. Communicable diseases in which sanitation is of secondary importance.
   - E. Communicable diseases that can be controlled by insecticides, etc.

IV. Maternal and child care as a basis for a public health programme.
   - A. Maternity—a family and social problem.
   - B. The period of gestation—its characteristics and impositions.
   - C. The child during its first year of life.
   - D. The child from 1 to 12 years of age.

Theory and practice are kept in close relationship, the trainee having an opportunity to observe and participate in activities as soon as they are lectured on. In Unit I, for example, she can observe the health centre, discuss its various activities with the workers, and learn about the community resources that are available. In Unit II, which concentrates on habits of healthy living and particularly adequate nutrition, she sees patients in the rehydration and medical care and treatment clinics. In Unit III, which lays emphasis on environmental factors, the differences between urban and rural communities, and the link between basic sanitation, communicable diseases, and housing conditions, she learns basic nursing techniques, both those used in the home and those used in the medical and treatment clinics. Finally, in Unit IV, which stresses the importance of family living, she learns about antenatal care, lay midwife control, the care of the infant and child, etc.

The content of the course is usually covered inside the first four months, and the remaining two are spent mostly on practical work. The whole unit is presented at the beginning as a single subject, before the study of the subunits is begun.

The effectiveness of the visitadora sanitária

It is easy to criticize the *visitadora sanitária*, but it must be remembered that she is only an auxiliary worker who has had a mere 6 months' training and a limited educational and professional background. Until recently, the special educational material needed for her training was lacking. The training period is short, and a high proportion of *visitadoras* soon leave the service, usually to get married.

Nevertheless, in many areas without medical resources other than the SESP clinics the *visitadora* has clearly been of the greatest value: mothers and children are being looked after as they never were before; expectant mothers come early to the clinic; midwives are supervised; the incidence of puerperal infection, tetanus and ophthalmia neonatorum and infant mortality rates are coming down; immunization is being widely practised; and tuberculosis patients attend for treatment. The *visitadora* has the advantage over the qualified nurse that she belongs to the locality and knows its customs, so that she settles down to her work without any of the difficulties that the nurse often experiences.

Excellent though the work of the *visitadora* generally is, it is nevertheless recognized in Brazil that with the expansion of SESP activities it will be necessary to extend her training period to 18 months to enable her to cope with the increasing demands on the nursing services.

PROBLEMS OF THE INTERNATIONAL NURSE *

The nurse working in a foreign country in one of the many international programmes of aid is not to be equated with the tourist, who looks on from the outside, as it were, knows little or nothing about the customs or culture of the people, and is generally a very temporary visitor. The nurse is usually there for a considerable time, has to work with her national opposite numbers (her counterparts), and because she is helping the people of the country is brought into close contact with them and with their ways of living and attitudes to health, disease, and life in general. The people with whom she comes into contact or with whom she works may be very like her own people in these general customs and attitudes, and it may be easy for her to settle down. But they may be very different, and then she may have difficulties in her personal adjustment to living and working among them, or in her relationships with her national counterparts or her patients.

Personal adjustment to new ways of living

The nurse entering international service may do so for any of a number of reasons: she may want to travel, she may be interested in other people's ways of living, she may like meeting new people, or she may want to help the underprivileged. Whatever the reason, she often goes to a country where the whole attitude to life is different from that in which she has been brought up, and not unnaturally she is often at a loss how to act, often seized by the feeling that she ought to have worked out a firm " philosophy of life " before she went abroad so as to be able to keep her bearings in her new situation. Her reactions to this new environment may be greatly influenced by the attitudes of the international or bilateral aid group in which she finds herself. Spending the day working, as so often she does, in a strange language or through interpreters, she may look forward to relaxing in the evening with people who speak her own language, and the almost unavoidable influence of the attitudes of this group can help or hinder her in her adjustment.

She may also have to face the fact that the standards of nursing in which she has been trained receive only lip service, if they are even acknowledged, by those with whom she works. She may find that her ideas on time require adjustment in the light of their unpunctuality, apparent squandering of time, and procrastination. She may, if she is teaching in a training school, expect the students to do some studying on their own, only to find that she is expected to teach everything, that what she teaches is the main source of their knowledge. She may have to

* This article is based on: Read, M. *Customs and culture: problems of nursing services in cross-cultural situations.* In: *Aspects of public health nursing*, p. 173.

re-assess her own standards of bedside nursing practice because of the totally dissimilar standards prevailing in some of these countries.

Clearly the international nurse will be better equipped to deal sympathetically and understandingly with the new situations she is called upon to face if she has some grasp of the culture of the people, meaning by this the ways of living built up by the people and handed down from generation to generation (in the USA often termed " folkways "). She will soon observe that culture is seldom homogeneous, either economically or ethnically. There is often a dominant culture, with different forms in urban and in rural areas; and some of the more educated people will wish to assimilate themselves to foreign cultures rather than follow the traditional culture. The culture of the people cannot be judged merely by the current political aspects of its life, or a few local practices often labelled as " superstitions " by educated nationals of the country as well as by members of the international teams. If the international nurse studies the total cultural picture of the people among whom she is going to work she will find that these " superstitions " often have a logical basis and can be understood in the context of the ideas and practices of the people as a whole. The study of the people's culture will have another advantage for her. It may show her the direction in which traditional culture is evolving, and may help her find out what makes different communities open to new ideas—an important stepping-stone to persuading them to adopt the cultural changes inherent in all health programmes.

Adjustment to national colleagues

Reports from international nurses on their work often refer to certain attitudes among local personnel: to the superior airs of some midwives, who may refuse to wear uniform and sometimes ignore completely the practices of the people; to the lack of sympathy shown for the sick; or to the preference shown for clinic or hospital rather than for domiciliary work (a preference not unknown elsewhere). Jealousy of the international team sometimes exists, so that the technical assistance programme does not get the co-operation it needs. Many of these problems affecting the relationships between international and national personnel are connected with status, and affect not only national counterparts but also the international nurses and the auxiliary workers, as well as the administrators of the programme and the medical workers. Some form of hierarchy is universal in health services everywhere, but it varies from place to place, and the international nurse needs to see the situation in terms of the status patterns of the community in which she finds herself. Seeing it in this way, she will be helped to restrain her impatience when status seems to stand in the way of people doing jobs she would normally consider as part of their functions. Status is also related to salary: the salary paid may appear to confer status and preclude the local nurse from doing certain work; or it may be so inadequate that the nurse is unwilling to extend the scope of her job, or to undertake extra work for which she is not paid. Or again salaries in general may be so low that the nurse is reluctant to do work that will prevent other workers from earning a scanty living.

There is sometimes a lack of sympathy shown on the part of national nurses towards patients other than sick relatives. This is not surprising, when it is remembered that, in Europe, a long period elapsed before the community (except for the Church) took any interest in its sick. This same process is now taking place elsewhere, the care of the sick gradually being transferred from the family to the community, but at different rates in different countries. Some knowledge of nursing history might help the international nurse to deal with this apparently unsympathetic attitude with greater patience, and the national nurse to detect similarities between her own community's situation and the situation elsewhere at other times.

Adjustment to patients

It does not usually take long for the international nurse to realize that patients react

differently according to whether they are in hospital or at home. In hospital they are absorbed into a modern community, in which the services they receive, the treatment they are given, and their relationships with the staff have no parallel in their traditional culture. At home—whether they are treated there or make periodic visits to clinics or health centres—they remain part of their own community, subject to the limitations imposed by their culture. Consequently, the advice that an international nurse gives in a clinic or the treatment that would be suitable in a hospital is often impossible to carry out at home. The nurse is then faced with a dilemma, and must seek some kind of compromise between the advice she wants professionally to give and the advice that stands a reasonable chance of being followed. Hence the importance of her having a thorough understanding of the culture of the people among whom she works; not just a piecemeal knowledge of their customs, but a sympathetic understanding of their attitudes and beliefs that will enable her to judge whether the practices conflicting with those she has been professionally taught are psychologically an important part of the patient's cure and whether it would not hinder, rather than help, the patient if they were to be discouraged. To acquire a balanced attitude in these matters is not an easy task. As Dr Read remarks:

"The international nurse has to solve not one problem but a series of problems when she is trying to adjust her previous attitudes about public health work to new conditions. In a strange culture she is face to face with new problems of community behaviour and new community attitudes towards health and disease. At the same time she is under obligation to assist these people by all the means at her command, and gradually to educate them in new ideas about health and the treatment of disease. She wants to understand, as far as she possibly can, the basis of the attitudes, ideas and practices of the community. She may have little time for systematic study herself, and she cannot always rely on either counterparts, or her colleagues, or the trainees for accurate and informed knowledge of the 'folkways' of the people. She may be aware too that in the long run, when the aid programme has been completed, the local personnel may be less anxious than she is to see modern practices adopted, and many or some of the former practices will persist partly because they are so deeply rooted in cultural values and beliefs. The attitude of the nursing staff to the local communities may be that this is just what the rural uneducated people do, and they will leave it at that."

While the international nurse may soon be convinced that a comprehensive view of the culture of the people among whom she is working is needed for her work to be fully effective, she has also to try to convey to the nurses whom she is training some sense of the importance of these cultural concepts, to arouse their sympathy, and to stimulate them to seek a deeper knowledge of the part played in the community by cultural attitudes to health and disease. This she will try to do by starting with what they know and building upon that foundation; not by thrusting new ideas upon them regardless of the beliefs and practices to which they have been accustomed for generations.

Vaccination certificate requirements

Under the International Sanitary Regulations a health authority may, under certain conditions, require international travellers to produce certificates of vaccination against cholera, smallpox and yellow fever. The specific requirements of 188 countries and territories as on 20 December 1960 are given in a new edition of the WHO booklet entitled *Vaccination Certification Requirements for International Travel*. This publication, which also contains information on yellow fever receptive areas and yellow fever endemic zones, is bilingual (English and French). The annual subscription is 13/4, $2.75, or Sw. fr. 8.—; this includes supplementary lists of amendments that may be made to the requirements during the year following publication.

THE WORK OF WHO IN 1960

The outstanding activity of WHO during 1960 was its help to the Republic of the Congo (Leopoldville) in meeting the emergency health situation with which it was faced on achieving independence. Introducing his latest annual report (covering the first nine months of 1960),[1] Dr M. G. Candau, Director-General of WHO, refers to this operation as follows:

"The task was a challenge to the Organization, providing as it did an opportunity for WHO to demonstrate the value of its co-ordinating and advisory functions in a situation in which time was an essential factor and in which the usual machinery of the Organization had to be adapted to complex and continually changing conditions. The way in which WHO responded to this challenge is one of the best proofs of the soundness of its structure and of the maturity it has reached barely twelve years after it came into being.

"An account of the activities carried out in July, August and September will show, I believe, that they were successful. By placing where they were most needed the thirty-seven medical teams, rushed to the spot by certain national Red Cross Societies—in answer to the joint appeal by the International Committee of the Red Cross and the League of Red Cross Societies—and by certain governments, WHO took the first step towards solving the problems arising from the lack of qualified personnel in many areas. Furthermore, by recruiting without delay a few immediately essential health personnel, WHO helped avert the threat of a breakdown in the services of environmental sanitation and the control of endemo-epidemic diseases. Finally, and keeping in mind the long-term needs of the young republic, WHO was able to work out a programme for the training and education of Congolese medical and paramedical personnel, at the same time recruiting the foreign personnel needed in the first instance to staff basic health services."

Malaria eradication

Although handicapped by shortage of funds, the WHO-assisted world-wide malaria eradication programme made significant progress in 1960. Sixty-three countries or territories are known to be fully engaged in malaria eradication work, and in another 17 the health authorities are on the point of adopting their final plans.

The majority of national programmes are receiving direct help from WHO. The provision of advisers on administrative methods and of engineers trained in malaria eradication has already led to greater efficiency of planning, administration and operation. Sixty-four fellowships in malaria work were awarded in the nine months under review, and WHO drew up syllabuses and supplied staff to help with the teaching at the international and regional malaria eradication training centres that have been set up in various parts of the world. Several national training courses have also been helped.

Knowledge of malaria vectors and their peculiarities is steadily increasing as the result of extensive observation. The importance of outdoor resting by many vectors has been more fully recognized and is being more widely investigated. Records of susceptibility tests have been received from all regions and indexed at headquarters. One fact that has emerged is that anopheline resistance to DDT is comparatively rarely of a high order, so that it may sometimes be possible to continue to use DDT in areas where such resistance has been found.

Communicable diseases

Developments in the field of communicable diseases included a wider recognition of the advantages to be derived from a comprehensive approach to their control. This requires an effective epidemiological service working in co-operation with the appropriate public health laboratory and statistical services. WHO is promoting the training of epidemiologists to take charge of these services in their respective countries. Wherever possible, pro-

[1] World Health Organization (1960) *The work of WHO 1960: Annual Report of the Director-General to the World Health Assembly and to the United Nations* (*Off. Rec. Wld Hlth Org.*, No. 105), x+224 pages. Price: 10/—, $2.00, or Sw. fr. 6.—.

grammes against specific diseases are being combined in order to economize on personnel, e.g., personnel employed on yaws campaigns have been used for the detection of leprosy cases.

Efforts to improve methods for the diagnosis, treatment and prevention of tuberculosis were continued throughout the year. Further results were made available from the comparative trial of domiciliary and institutional chemotherapy in tuberculosis conducted by the Tuberculosis Chemotherapy Centre, Madras, with assistance from WHO. The results confirm that in suitable circumstances domiciliary chemotherapy is by no means inferior to institutional treatment.

Satisfactory progress was maintained in the national campaigns for the eradication of yaws, and the further training of yaws campaign workers for work in the general rural health services has been undertaken in certain countries.

An increase in the incidence both of venereal syphilis and of gonorrhoea has been observed in several countries. The fact that attack rates are higher in the lower age groups, and particularly among " teen-agers ", presents new social problems.

The work of the WHO Serological Reference Centres at Copenhagen and Chamblee and of the International Treponematosis Laboratory Centre at Baltimore has continued. Collaboration between laboratories in several countries, to define an international reference serum for *Treponema pallidum* immobilization testing, has been maintained. An international collaborative assay was organized to define the conditions in which the fluorescent treponemal antibody test can be reproduced, with a view to establishing international standards for the reagents used in this specific serological procedure. Arrangements were made with several institutes for research on survival and growth factors in efforts to cultivate treponemes *in vitro*.

Plans for the expansion of WHO's work on respiratory viruses have been advanced by the designation of an International Reference Centre for Respiratory Virus Disease (other than influenza) at the National Institute for Medical Research, London. In furtherance of the programme of immunological and other surveys, a World Serum Reference Bank was designated at Yale University, and it is proposed to establish a regional centre at the Institute of Epidemiology and Microbiology in Prague.

Progress was made in 1960—though rather slowly—towards the eradication of smallpox. It is hoped that the pilot programmes started in South-East Asia will give answers to the numerous technical and administrative problems involved in the organization of mass vaccination campaigns in that region. In the Western Pacific Region, such campaigns are already under way in several areas. Much work against smallpox has already been done in countries of the African Region, and many others are interested in developing eradication programmes and have asked for the assistance of WHO. In addition, special attention was paid to smallpox research during 1960.

The rapid progress in the study of live poliovirus vaccines was accelerated in 1960. Huge programmes have been conducted in many countries and by mid-summer it was estimated that more than 70 million persons had received the vaccines. The Second International Conference on Live Poliovirus Vaccines was convened in Washington in June jointly by WHO and the Pan American Health Organization with assistance from the Sister Elizabeth Kenny Foundation.[2] It was followed by a meeting of the WHO Expert Committee on Poliomyelitis.[3]

Assistance to research on arthropod-borne virus infections continued. WHO is also helping trachoma research by co-ordinating studies and the exchange of information between workers, and by providing material assistance to a number of institutes.

Recent surveys by WHO have demonstrated the spread of bilharziasis in endemic areas, its appearance in countries that had been considered free from it, and its aggravation in irrigated areas. An Expert Committee on Bilharziasis met late in September to evaluate the place of molluscicides in the

[2] See *WHO Chronicle*, 1960, **14**, 462.

[3] *Wld Hlth Org. techn. Rep. Ser.*, 1960, **203**.

control of bilharziasis and to formulate methods of using them.

Mass campaigns for the ambulatory treatment of leprosy continue to progress satisfactorily in different parts of the world. An assessment of the frequency and type of deformities and disabilities caused by leprosy in all countries where the disease is a problem was undertaken during the year on the recommendation of an Expert Committee on Leprosy that met in 1959.[4]

Arrangements are being made with laboratories in different countries for co-ordinated research on the microbiology of leprosy.

Environmental sanitation

The planning and organization of the world-wide programme for the improvement of community water supplies has been continued. During the year, WHO sanitary engineers and consultants visited countries in all six WHO regions to promote the programme and to provide technical assistance. In addition, courses on the financing, administration and management of community water supplies have been sponsored in various parts of the world. Direct assistance has been given to a number of countries, not only in the health and engineering aspects of water supply, but in management and financial planning as well.

The principle underlying the programme is that an ample, conveniently situated supply of pure water is fundamental to a decent standard of living, and is of great importance to social and economic development.

In collaboration with other international agencies, WHO is taking part in a long-range programme of concerted international action for low-cost housing and related community facilities. Assistance has been given to newly independent countries in Africa in the planning and organization of sanitation services as a part of their health services.

In the European Region, as in certain other regions, work in environmental sanitation is increasingly concerned with "man-made" rather than "natural" problems, e.g., river, lake, and even sea pollution, atmospheric pollution, and other problems that follow the rapid growth of cities. Another series of related problems is connected with the growing use of atomic energy in power production and of ionizing radiation in industry and medicine.

Work on insecticide resistance and vector control was increased during 1960 under the intensified programme of medical research. During the first six months of the programme for the evaluation and testing of new insecticides, study was begun on more than twenty products. A WHO Insecticides Testing Unit was established in Lagos, in collaboration with the Government of Nigeria, for field trials of selected compounds. Work on the improvement of spraying and dusting apparatus used in malaria eradication and other vector control programmes continued, and the organization of a programme of research on aircraft disinsection was completed.

Standard test kits were provided for use on a wide variety of insect vectors including fleas, bedbugs, cone-nosed bugs, sandflies, houseflies, tsetse flies and *Drosophila*. These kits are used for field measurement of insecticide resistance and of the efficacy of residual applications of insecticide. Radioactively tagged insecticides will shortly be provided to collaborating laboratories for research into resistance and its mechanisms.

Nutrition

In nutrition the major problems continue to be those associated with protein malnutrition in young children. Much attention has been paid—in co-operation with FAO and UNICEF—to the production of cheap and suitable protein-rich foods, with emphasis on the use of pulses and other foods that do not require industrial processing. Guidance in the programme for the prevention of protein malnutrition is given by the Protein Advisory Group, set up by the Director-General in 1955 to advise on the suitability and safety of new foods for infants and young children. The group has now been reorganized and its terms of reference en-

[4] *Wld Hlth Org. techn. Rep. Ser.*, 1960, **189**.

larged so that it may serve in an advisory capacity to FAO and UNICEF as well as to WHO.

The practical results of the programme are perhaps most clearly seen in Guatemala, where the Institute of Nutrition of Central America and Panama (INCAP) has developed a mixture of vegetable proteins called "Incaparina" that is well accepted and is being distributed on an increasing scale, and in Africa, where mixtures of vegetable protein and skim milk are becoming popular in Nigeria and Uganda.

Further work has been done on anaemia of nutritional origin. The Indian Council of Medical Research has, with the assistance of WHO, conducted investigations into the prevalence of different types of anaemia and the therapeutic value of dietary supplements.

Non-communicable diseases

Progress in the field of non-communicable diseases included the establishment of a research programme in cardiovascular diseases, covering the preparation of an internationally acceptable classification of cardiovascular diseases and standardized criteria for their clinical diagnosis; standardization of methodology to ensure comparability of data; training and exchange of research personnel; and facilitation of scientific communication. A combined epidemiological and pathological study of atherosclerosis of coronary arteries and the aorta has been started in Europe. Support has been given to prevalence studies of ischaemic heart disease and hypertension in Jamaica and Wales, and a cardiomyopathies research project has been started in Uganda. In cancer research, work on soft tissue tumours and lung tumours continued at the two international reference centres established in Washington and Oslo. A reference centre on mammary tumours was established in London towards the end of the year. Two studies on lung cancer were planned to start by the end of 1960—one on the incidence of lung cancer in two cities, Belfast and Dublin, with different types of air pollution—the other on the reasons for the difference in mortality rates from lung cancer in Norway and Finland. During the year, WHO scientific groups discussed neoplastic diseases in animals and the evaluation of the carcinogenicity of food additives.

Mental health

Mental health continued to play a prominent part in the work of the Organization. The teaching of psychiatry and of mental health was examined by an expert committee in June.[5] In September an expert committee reviewed the whole of WHO's mental health programme from the beginning and the findings of a world-wide survey of mental health resources, facilities and plans, as a basis for recommending priorities for a sound world mental health programme. A centre for the medical and social orientation of young epileptics, opened in Marseilles in January 1960, is a good example of the part WHO can play in the development of national services, since it was planned and built in accordance with recommendations made in 1955 by a WHO Study Group on Juvenile Epilepsy.[6]

Education and training

Dr Candau comments as follows on the education and training programme of the Organization during 1960:

"The activities listed under the heading education and training, extensive as they are, describe in fact only some aspects of WHO's total educational effort. In particular, we must not forget the great number of advisory and educational meetings which took place in 1960 in various branches of WHO's work. Expert committees, study groups, scientific groups, conferences, seminars and symposia are part of the large process of sharing scientific information through organized contacts and discussions. These meetings, the fellowships for group training activities and for individual studies abroad, and the international experts serving in various countries as visiting professors and in training and demonstration teams constitute a triple approach towards strengthening health services by promoting improved standards of teaching and training in the medical and related professions."

[5] See page 106 of this number.

[6] *Wld Hlth Org. techn. Rep. Ser.*, 1957, **130**.

The emergence of a considerable number of new independent States has accentuated the need for professional staff, and it is particularly important to resist the temptation of speeding up training programmes to the detriment of their quality. On the other hand, it is urgently necessary in many countries to provide the best possible substitutes and assistants for fully trained professional personnel.

In all, 1006 fellowships were awarded by WHO in the period 1 December 1959 to 31 August 1960—the number awarded in the corresponding period in 1958-59 was 1130. The fellows came from 122 countries and territories, and studied in 83 countries and territories. Of these fellowships, 79.5% were financed from the regular budget, 20% from Technical Assistance funds, and 0.5% by UNICEF. These figures do not include fellowships financed by the Pan American Health Organization. Most of the fellows came from various health services, but 16% were from the staff of teaching institutes and 7% from institutions devoted primarily to research. A further 4% were young people awarded fellowships to start or continue studies abroad for basic professional qualifications (in medicine, nursing, sanitary engineering, sanitation, etc.) for which training was not yet available in their own countries. Nearly a third (32%) of the fellowships were for attendance at special international courses or similar types of group training organized or assisted by WHO in 17 countries. Apart from fellowships, 212 persons from 64 countries and territories were enabled to attend 10 educational meetings organized by WHO in 10 countries and territories.

In addition, 90 visiting teachers sent by WHO on request served a total of 719 months in 24 countries and territories (see table on right). The principal fields represented were preventive medicine, nursing and the basic medical sciences.

Medical research

The intensified programme of medical research started fuller activities in 1960. Following the recommendations of scientific groups and of the Advisory Committee on Medical Research, the highest priority was

PROFESSORS, LECTURERS, ETC. ASSIGNED TO MEDICAL, PUBLIC HEALTH, NURSING, AND OTHER TEACHING INSTITUTIONS FROM 1 JANUARY TO 30 SEPTEMBER 1960

For training professional personnel
(by subject)

	Teachers	*Months*
Anatomy	3	21
Anatomo-pathology	1	3
Biology	1	9
Environmental sanitation	11	90
Health education	3	16
Maternal and child health	1	9
Mental health	1	5
Nursing	48	415
Occupational health	3	16
Ophthalmology	1	6
Pharmacology	1	6
Physiology	3	21
Preventive and social medicine	4	31
Radiology	1	5
Virology	1	3
For training auxiliary personnel	7	63
	90	719

Country or territory

	Teachers	*Months*
Afghanistan	8	68
Burma	2	12
Cambodia	6	39
Ceylon	2	18
China (Taiwan)	2	18
Ethiopia	3	27
Fiji	2	18
India	9	59
Indonesia	3	24
Iran	6	54
Israel	3	27
Lebanon	1	5
Libya	4	32
Morocco	2	11
Nepal	5	45
Nigeria	2	18
Pakistan	2	13
Philippines	3	17
Singapore	5	45
Somalia	3	27
Sudan	3	27
Thailand	3	27
United Arab Republic (Egypt)	10	79
Zanzibar	1	9
	90	719

given to research on communicable diseases, particularly those prevalent in the tropics. Next came research on cancer, cardiovascular diseases, radiation medicine and human genetics. Services to research such as standardization of nomenclature and techniques, the establishment of reference centres, the improvement of communication among scientists, and the training of research workers also received high priority. Limited funds have unfortunately delayed the programme for training research workers for the time being. The Organization has, however, already accepted an offer from the Swedish National Association against Heart and Chest Diseases to provide research training services to a value of 25 000 Swedish kroner annually. So far co-ordinated and collaborative research has received extensive WHO support. To a lesser extent support may be given to individual investigators, provided that their proposals for research are recognized as having sufficient merit.

The second meeting of the Advisory Committee on Medical Research was held in June 1960. It dealt with proposed programmes which it had not been able to review at its first session and laid down procedures for future work.

Nine scientific groups on medical research met up to the end of September 1960. The subjects discussed included comparative medicine (neoplastic diseases of animals), methods of evaluation of the carcinogeniticy of food additives, nutrition, radiobiology, tuberculosis, cardiovascular diseases, antibiotics, assessment of the medical and public health importance of bilharziasis, and public health practice. It is intended that as the research programme proceeds the work of the scientific groups will revert to expert committees, and outstanding investigators, whose advice will be of great value to the Organization on questions of research, are being appointed to the WHO expert advisory panels.

Radiation health aud human genetics

In work dealing with ionizing radiation and the public health aspects of atomic energy, emphasis was laid on assisting health authorities to strengthen their competence in radiation questions in order to meet their growing responsibilities in radiation health. Because of the need for special training in this field, a number of training courses in radiation protection were organized and fellowships were granted in radiation hygiene and related subjects. At the request of the Executive Board a study was made of radiation hazards and their prevention. The report of this study, which the Thirteenth World Health Assembly felt would be useful to national health authorities in their own radiation health programmes, will be published in the series *Public Health Papers*. Consideration was given to the question of medical X-rays, which provide one of the principal sources of man's exposure to radiation, and in particular to possible ways of reducing this exposure without interfering with the value of medical radiological procedures. Ways of improving the radiation safety features of medical X-ray equipment are under study.

Direct human data are of the greatest importance for a better understanding of the effects of radiation on human health. For this reason a Scientific Group on Radiobiology discussed the possibilities of research on groups exposed to radiation occupationally, medically, and otherwise. An international collaborative study was begun, with WHO support, of the incidence of leukaemia in selected groups of patients receiving radiation therapy.

In the field of human genetics, work was begun on an improved nomenclature and classification of genetically significant conditions with a view to their eventual inclusion in the International Classification of Diseases. Plans are under way for a comparative study of human births aimed at investigating the incidence of certain genetic conditions in different population groups. At a seminar jointly convened by the UN and WHO, geneticists and radiation epidemiologists discussed with those concerned with the recording of vital and health statistics the current adequacy and future potentialities of data gathered from these sources for use

in human genetics and in the study of radiation effects. The Organization's interest in studies of population groups in areas of high natural background radiation continued.

* * *

Throughout the year WHO continued to provide international technical services and carry out research in public health administration, nursing, health laboratory services, the organization of medical care, dental health, veterinary public health, health statistics, biological standardization and pharmacology.

There was a significant increase in WHO membership during 1960. The Thirteenth World Health Assembly welcomed 3 new members—the Republic of Cameroun, Kuwait and the Togolese Republic—and 8 new Associate Members. By the end of September, the Central Africa Republic and the Republic of Dahomey had become full Members of WHO by notifying the Secretary-General of the United Nations of their acceptance of the Constitution. This brought the number of full Members up to 92.[7]

The report contains separate chapters on work in the different regions, and a list of the country, inter-country and regional health projects helped by the Organization between 1 December 1959 and 31 August 1960.

[7] This number had increased to 100 by the end of the year.

INTERNATIONAL WORK IN CHOLERA*

3. The cholera patient

It is usual to distinguish three main clinical types of cholera—choleraic diarrhoea, cholerine, and cholera gravis. The fully developed clinical picture is seen only in cholera gravis, but no sharp distinction can be made between this form and cholerine, nor between cholerine and choleraic diarrhoea.

Cholera gravis

The onset of a typical cholera attack is abrupt, following an incubation period of about 1-5 (usually 3) days. Some observers have claimed that the attack is frequently preceded by prodromal diarrhoea, but the modern consensus appears to be that such an occurrence is rare. Copious diarrhoea and vomiting, together with muscular cramps, are the principal signs of the early stage of cholera gravis. The diarrhoea usually begins somewhat sooner than the vomiting and tends to be the more constant and persistent sign. It lasts on the average 4-5 days, but sometimes much longer. At first the stools contain bile, but they soon become acholic and assume the typical rice-water appearance, consisting of a colourless, slightly opaque, albuminous fluid in which floccules of intestinal epithelial cells are suspended. The vomitus also bears a resemblance to rice-water, once the contents of the stomach have been voided. Both the stools and the vomitus are extremely copious and are often ejected violently, as if from a sluice, without apparent distress to the patient. As many as 20-25 stools may be passed in the first 12 hours, but the average seems to be about 10 per day. Vomiting is somewhat less frequent.

Muscular cramps in the limbs usually accompany the rice-water discharges and are often very distressing. The abdominal muscles may also be affected, giving an impression of intra-abdominal pain, but true colics seem to be rare. The cramps have been noted to be more severe in young, vigorous persons, and Pollitzer believes that they are due to loss of sodium chloride, thus resembling the heat cramps in persons doing heavy work in hot climates.

* This is the third in a series of articles intended to give a concise account of the public health aspects of cholera and to outline present trends in its control. The first two articles in the series appeared in *WHO Chronicle*, 1961, 15, 3, 52.

Anorexia appears early and is soon followed by raging thirst. Attempts to still the patient's thirst only induce further vomiting. Retching and hiccups often cause considerable distress.

As the loss of fluids progresses, the blood pressure falls precipitately and the pulse becomes weak or imperceptible. After a period varying from 2 hours to 12 hours or more, the patient passes from the evacuation stage to the algid stage of the disease. In addition to complete circulatory collapse, this stage is marked by shallow, quick respiration and a lowering of body temperature. While the axillary temperature does not fall below 35°C (95°F), skin temperature may be as low as 30°C (86°F). The skin also becomes clammy and inelastic, giving the hands the characteristic shrivelled appearance known as " washerwoman's hand ". The features are pinched and drawn, with the eyes sunken and surrounded by a dark areola. Cyanosis, especially of the nails and lips, is common. The general impression is one of marked apathy, the patient showing little interest either in his environment or in his own condition. Moreover, his voice becomes husky and feeble, so that he can speak only in whispers. Muscular cramps may continue or even first become manifest during the algid stage. Diarrhoea and vomiting may also persist, though the evacuations become less frequent and copious. As a consequence of the low blood pressure, and possibly of other factors also, the secretion of urine by the kidneys is greatly depressed, and complete anuria is common.

The algid or collapse stage may terminate fatally in a few hours, or it may be followed by the stage of reaction. The longer the algid stage lasts, the greater is the danger of uraemia and the poorer the prognosis for the patient. It has been stated that complications are to be expected if the algid stage lasts more than 18-24 hours. In favourable cases, the pulse returns, gradually gaining in steadiness and strength, and the breathing becomes easier. The skin regains its normal appearance and feels warm to the touch; body temperature may be slightly raised. Vomiting subsides, and the stools become less watery and revert to their normal colour. Reappearance of urine may be delayed for several hours; at first it is scanty and concentrated but later it becomes copious. Recovery may be complete within a few days.

In less favourable cases, only partial recovery takes place and there may be frequent relapses with a grave risk of uraemia. Undoubtedly this is the most serious sequel of cholera gravis and is responsible for the highest proportion of deaths in the reaction stage. Its causes appear to be complex and have given rise to much controversy. Some modern writers maintain that anuria, with retention of waste products, is not the principal factor, and attach greater importance to acidosis and a general disturbance in the water and electrolyte balance. Death in patients who survive the algid stage may occasionally result from excessive febrile reactions, the patient sometimes relapsing into a typhose condition to which the name " cholera typhoid " has been applied. Though some workers have attributed this condition to the sudden release of large amounts of cholera endotoxin, Pollitzer supports the view that it is due to secondary infection.

A rare but rapidly fatal type of cholera, seen especially in old or debilitated persons, is characterized by the absence of purging and vomiting. Post-mortem examination invariably reveals large quantities of exudate in the intestines, and it has therefore been assumed that the absence of purging is due to an ileus-like paralysis of the intestine. At all events, the old name " cholera sicca " seems scarcely appropriate, and Pollitzer proposes that it should be abandoned in favour of " cholera siderans ".

Milder forms of cholera

Cholerine has been described as " a condensed picture of a true cholera attack in its mildest form ". In onset it resembles an attack of cholera gravis, with the frequent passage of copious, rice-water stools and vomiting of large quantities of yellowish-green or colourless fluid. The severe dehydration, profound collapse and anuria are absent, however, and the patients usually recover rapidly after a few hours, or they may suffer

from a mild gastro-intestinal disturbance for several days. Muscular cramps, cold extremities, huskiness, and oliguria but not anuria may sometimes accompany such attacks.

Choleraic diarrhoea is a still milder infection in which symptoms other than diarrhoea are slight or absent. Vomiting is never present, but there may be anorexia, nausea, and a sense of pressure in the stomach, often accompanied by lassitude, headache and a feeling of general malaise. Some patients also complain of cramps in the calves. Urine secretion may be somewhat diminished. Recovery takes place without treatment and patients frequently do not seek medical attention. In epidemics, it may be difficult to differentiate between this form of cholera and other gastro-intestinal infections. However, it appears to be more frequent than cholerine.

Blood changes in cholera

Inasmuch as uraemia and circulatory collapse are the two principal causes of death in patients suffering from cholera, the outcome of the disease may be said to depend largely upon the charges that take place in the composition and volume of the blood. These changes, in turn, are mainly the result of the excessive loss of fluid and electrolytes in the evacuations. Studies carried out during the 1947 cholera epidemic in Egypt showed, for example, that as much as 10-15 litres of water may be lost in the course of 24 hours. Early studies on changes in blood volume indicated reductions of 50% or more in some patients, but more recent determinations with improved methods have given considerably lower figures. Thus, Chaudhuri and his associates (1951) found that whereas there was a 20-30% reduction in the plasma volume, the blood volume was not decreased. The packed cell volume was much more increased than could be accounted for by the reduction in plasma volume, and the authors attached great importance to this increase in red blood cells, since they held that the resulting high viscosity of the blood prevented the maintenance of proper circulation in the body. The authors also found that the volume of interstitial fluid underwent very little change in patients who subsequently recovered, but it was 39% below the normal value in patients who eventually succumbed.

Changes in the red blood cells have been studied by many other workers. During the 1947 Egyptian cholera epidemic, for example, Awny found that the volume of packed red cells varied in cholera patients between 48% (around the normal upper limit) and 80%. The red cell count was invariably increased, the highest values recorded being about 7.5 million per mm^3, but values up to 8 million per mm^3 have been reported by others. Haemoglobin levels are likewise increased and, according to some workers, may reach 150% (24 g per 100 ml) in severe cases. Awny considered haemoglobin estimations and red cell counts to be a useful practical guide to the degree of haemoconcentration, though less reliable than haematocrit determinations. On the other hand, Ghanem & Mikhail (1949) claimed that the haematocrit reading was of no value at all in gauging the degree of dehydration.

The sedimentation rate is often normal in severe cases, but tends to rise as improvement occurs or after rehydration. This is probably explained by the fact that in severe cases the high viscosity of the blood, resulting from haemoconcentration, counteracts what would otherwise be a high sedimentation rate. Contradictory claims have been made regarding the coagulability of the blood. Several early workers reported a decrease in the clotting power of the blood in cholera patients. On the other hand, Lahiri (1935) stated that the clotting time was decreased and this has been supported by Chatterjee (1946) who maintained that blood taken from cholera patients is liable to clot in the syringe.

It appears that the white cell count is increased in cholera to a greater degree than can be accounted for by haemoconcentration. Awny found figures between 20 000 and 30000 per mm^3 to be common during the 1947 Egyptian cholera epidemic, the polymorphonuclear cells being mainly involved. Lymphocytes were decreased and eosinophils absent during the acute stage of the disease. These findings seem to be in general agreement with

those of most other workers, and it has also been observed that the leucocytosis persists even after the red cell count has returned to normal, though there may be some changes in the differential white cell count.

Chemical changes in the composition of the blood carry even graver consequences for the cholera patient than the physical changes. It might at first appear that the loss of water would lead to an increase in the concentration of salts in the blood, but in fact electrolytes are lost at almost the same rate as the water and the remaining body fluids are still practically isotonic. Among the most recent and reliable studies are those of Chaudhuri and his associates (1951 and 1954). They found plasma chloride levels to be normal or even slightly increased in cholera patients, but when they calculated the total circulating chloride in mg per kg of body-weight, the values were very much below those of normal subjects, particularly in patients who later succumbed. They point out that the total loss of chloride from the body is probably much greater than they had determined, since there is also a gross depletion of interstitial fluid. Plasma sodium concentrations were also found to be within normal limits, but the potassium content of the plasma was increased and was especially high in patients who afterwards succumbed to uraemia or pulmonary oedema. It has been suggested that alterations in the permeability of the cell membranes are responsible for this outpouring of potassium from the cells.

A reduction in the free alkali of the blood in cholera patients was noted as early as 1831 by O'Shaughnessy. This has been confirmed by all subsequent workers, and it seems that a severe degree of acidosis is indicative of a grave prognosis. The depletion of the alkali reserve is considered to be mainly the result of loss of bicarbonate in the evacuations; an increase in the protein content of the blood is, however, an additional factor making for increased acidity. Determinations of blood sugar have given somewhat variable results, but a low blood sugar seems to be more common than hyperglycaemia—as might be expected in a condition of shock.

Retention of nitrogen is a constant feature of cholera, but opinions differ both with regard to the causes of azotaemia and its relationship to the severity of the disease. In one series of patients, there were 6 deaths among 14 patients in whom the level of non-protein nitrogen in the blood exceeded 120 mg per 100 ml (maximum 270 mg per 100 ml), 3 deaths among 21 patients with levels between 90 mg and 120 mg per 100 ml, and no deaths in the group of 26 patients who had non-protein nitrogen levels between 51 mg and 90 mg per 100 ml. Ghanem & Mikhail (1949) maintained, however, that a high urea content of the blood bore no relation to the clinical severity of the cholera attack, to the degree of haemoconcentration, or to the state of hypochloraemia. They postulated that, in addition to dehydration and circulatory failure, a toxic factor released by the kidneys was involved in the production of azotaemia. As already observed the causes of azotaemia during cholera and of post-choleraic uraemia appear to be complex and no unanimity of opinion regarding them has yet been reached.

Circulatory failure

As a consequence of the profound changes in the blood described above, a pooling of the blood in the veins takes place, particularly in the splanchnic area. There is, in effect, a reduction in the circulating blood volume and the arterial vessels are emptied of blood. The systolic blood pressure may fall below 70 mm Hg and the pulse is apt to become imperceptible. The lower the pressure, the poorer is the prognosis, and Rogers reported that uraemic symptoms almost invariably developed if the pressure remained below 90-100 mm Hg for two or three days after the collapse stage was over. Although there does not appear to be a direct correlation between the blood pressure and the specific gravity of the blood, patients can usually be revived by saline infusions unless the pressure has fallen very low and secondary shock has supervened.

The venous pressure is also lowered and appears to be more closely related to the

severity of the case than the arterial pressure. At the same time, the circulation time is increased.

Diagnosis

Under epidemic conditions there is usually no difficulty in diagnosing the severer forms of cholera from the clinical picture alone. Sporadic cases, occurring in a country where cholera is rare or at the beginning of an epidemic, may not be so easily recognized, however. Conversely, certain diseases that more or less resemble cholera in their clinical appearances may be mistaken for cholera. Such diseases include gastro-intestinal infections by cholera-like vibrios and other bacteria, as well as a number of parasitic infestations and such syndromes as cholereiform malaria and stoker's cramp.

In spite of an apparent resemblance of these diseases to cholera, careful history taking usually reveals the presence of signs or symptoms not encountered in true cholera—for instance, colicky pains or fever. The order in which the symptoms appear may also be different: in food poisoning, for example, vomiting usually precedes diarrhoea. The colourless, acholic, almost odourless rice-water stools typical of cholera are seldom encountered in other infections, but evacuations of somewhat similar appearance may occasionally be seen in acute gastro-enteritis or " paracholera " due to cholera-like vibrios.

The diagnosis can be definitely settled only by bacteriological examination of the stools or vomit. Direct microscopic examination of stained smears prepared from the stools is nowadays considered of little value because on morphological grounds alone *V. cholerae* cannot be differentiated with certainty from cholera-like vibrios and certain other enteric bacilli. The procedure usually adopted is to prepare first an enrichment culture from the stools by using a medium that selectively favours the growth of the cholera vibrios at the expense of other organisms. The fact that *V. cholerae*, unlike other pathogenic enteric bacilli, will grow well in media of relatively high alkalinity is exploited for this purpose. A great many different types of media have been devised including, among the most successful and widely used, peptone water, bismuth-sulfite medium, potassium-tellurite medium, and a variety of agar media, such as bile-salt agar and Aronson's medium. Final identification of *V. cholerae* is based upon the following properties: ability to ferment sucrose and mannose but not arabinose; failure to form acetylmethylcarbinol during the fermentation of glucose (Voges-Proskauer reaction); positive cholera-red (nitrosoindole) reaction; absence of haemolytic activity; and, most important of all, agglutination by specific O-agglutinating serum. Detailed instructions for the examination of stool specimens obtained from cholera suspects were compiled in 1958 by Burrows & Pollitzer [1] in consultation with an international group of experts, and international reference preparations of cholera 0-agglutinating sera have been established by the WHO Expert Committee on Biological Standardization.[2]

In evaluating the results of the laboratory tests, it has to be remembered that failure to detect cholera vibrios in the stools is not necessarily proof that the patient is not suffering from cholera. In specimens taken within a few hours of the onset of diarrhoea, the vibrios are likely to be present in large numbers, but from the second day onwards the numbers tend to decrease rapidly. In one study, more than 70% of the patients were negative by the end of the first week, nearly 90% at the end of two weeks, and 98% after three weeks. Administration of antibacterial drugs hastens the disappearance of the vibrios from the stools. Tests should therefore be performed on several specimens and on cultures prepared with the aid of different media. While a negative result is not conclusive, positive findings must also be interpreted with caution, since infection with other enteric pathogens may be present simultaneously.

[1] Burrows, W. & Pollitzer, R. (1958) *Bull. Wld Hlth Org.* **18**, 275; republished in part as an annex to the WHO monograph *Cholera* (p. 991).

[2] *Wld Hlth Org. techn. Rep. Ser.*, 1954, **86**, 7.

Treatment

From present knowledge of the pathology of cholera, it is evident that replacement of the lost body fluids and salts should restore the circulation and prevent the development of uraemia. In fact, the intravenous administration of saline infusions is the mainstay of modern treatment. It is only since 1909 that this method has come into general use, however, mainly because of the prejudice previously existing against intravenous therapy and because earlier attempts made with hypotonic solutions gave discouraging results. A great many other methods of treatment were tried during the nineteenth century, including blood-letting and blood transfusions, laxatives, opium, and applications of heat and cold.

Alongside these somewhat arbitrary procedures, attempts were made to restore the fluid balance of cholera patients by administering fluids by mouth or rectum. Although these methods have some value, they are much less efficient than intravenous infusion. Subcutaneous infusion, practised by many workers during the latter part of the nineteenth century, is not only of low efficacy but also painful and hazardous. It was through the work of Rogers that the great advantages of hypertonic saline given by intravenous infusion came to be universally accepted. In the early days, however, untoward reactions, consisting of chill, fever and sometimes collapse, were frequent. These reactions were later shown to be due to the presence in the infusion fluid of pyrogens—thermostable pyrogenic substances produced by certain widely distributed bacteria. Various methods have been devised for preparing pyrogen-free water, e.g., by distillation, chemical treatment, or the use of special filters, and it has been claimed that shaking for 15 minutes with powdered charcoal is a rapid method for the preparation of large quantities. Fresh well water often contains fewer pyrogens than old distilled water. Unfortunately, the only reliable method available at present for detecting the presence of pyrogens in water is by injecting it into animals, and this is time-consuming.

There have been considerable differences of opinion regarding the strength of saline solution that ought to be administered; some authors have even maintained that normal saline should be used, since hypertonic solutions would lead to an undesirable withdrawal of fluid from the tissues. However, comparative studies have shown much higher death-rates in patients treated with normal saline than in those given infusions of hypertonic solutions. Various formulae have been recommended, some containing sodium bicarbonate as well as sodium chloride, and the modern tendency is to adapt the type of solution used to the condition of the patient. The use of alkaline solutions, containing sodium bicarbonate, not only offsets acidosis but also considerably lowers the death-rate from uraemia. The intravenous infusion of glucose solutions has been recommended by several workers, though for different reasons; whatever its mode of action, it appears to be a useful adjunct to saline infusion. Beneficial results from plasma administration have also been claimed by some authors, but Pollitzer supports the opinion of Mackie (1954) that " plasma and whole blood are seldom necessary and may be very harmful ".

While some workers have maintained that, except in cases of pre-existing cardiac affection, the administration of very large quantities of saline infusion is free from risk, others have emphasized the need for caution and have drawn attention to the possibility of provoking pulmonary oedema if the infusions are continued too long or given too rapidly. The best guide seems to be the specific gravity of the blood, but where this cannot be determined the general condition of the patient and the pulse and blood pressure seem to provide a fairly reliable indication of when sufficient fluid has been administered. The amounts usually required seem to vary from about 1½ pints to 4 pints (approximately 1-7 litres), and an infusion rate of about 4 ounces per minute (approximately 100 ml per minute) has been recommended.

Attempts have been made to develop a specific therapy against cholera. A convalescent serum was first used in 1894 by Freymuth, who claimed that 2 out of 3

patients recovered. Treatment with various immune sera has since been tried on a number of occasions, but with very varying results, and Strong stated that " no one has reported a lower mortality in a large series of cases treated with serum than has been obtained by careful treatment with intravenous injections of saline and alkaline solutions ". With this opinion Pollitzer is in full agreement. Essential oils, such as those of cajeput, aniseed and juniper, have been claimed to be of considerable value both in the prevention and in the treatment of cholera, and they were thought to have a bactericidal action on the cholera vibrios. Their use has been strongly advocated as recently as 1934, but more modern workers have been sceptical of the earlier claims. Kaolin appears to be of some value, but its use is attended by practical difficulties, not the least of which is the transport of the large quantities needed.

In 1922, d'Hérelle detected a bacteriophage active against cholera vibrios in the stools of a recovered patient and he subsequently reported (1930) that the oral administration of choleraphages to cholera patients resulted in a considerable reduction in mortality, particularly if treatment was commenced within 6 hours of the onset of the attack. These favourable results have been confirmed by several subsequent workers, but others have found phage therapy completely ineffective. It is possible that this lack of success may have been due to the use of bacteriophages that were inactive against the particular strain of *V. cholerae* responsible for the epidemic; at all events, the method is extremely difficult to apply on a large scale and is no longer used.

The sulfonamides exert a marked bacteriostatic action on cholera vibrios *in vitro* and some favourable results have been reported following the treatment of cholera patients with these drugs. On the whole, however, their action appears to be too slow to be of real value in the later stages of the disease, and even in the earlier stages it is doubtful whether they are of much benefit. *V. cholerae* is also sensitive to the antibiotics, particularly to tetracycline, chlortetracycline and chloramphenicol, although the sensitivity varies very much with the strain tested. Several clinical trials with these drugs have been made and Narayana and his colleagues (1954) came to the conclusion that chlortetracycline was a drug of promise when used in conjunction with intravenous saline. However, as Pollitzer points out, " the aim of a specific cholera therapy is not to augment the value of the infusion treatment but to render the latter superfluous ". Even if an effective suppressive treatment is eventually evolved, he states, " in actual practice its usefulness will be limited, since, owing to the rapid progress of the disease, many of the cholera patients are already in a state of dehydration and collapse when first seen ".

At present, there is no really satisfactory treatment for patients in the early stage of the disease. Purgatives appear to be definitely contraindicated; in fact, Strong recommends that all drastic therapeutic procedures should be avoided and treatment confined to strict rest in bed, the patient being moved as little as possible. He considers that opiates may be given during the first 24 hours, but even this is debatable. No food should be allowed other than rice water or barley water.

The development of saline infusion treatment, in conjunction with modern methods of nursing and the use of certain adjuvant drugs (atropine, adrenalin, pituitary extracts, cardiac stimulants), has brought about a very marked reduction in the mortality from cholera. In the endemics of the nineteenth century, death rates of 50-60% or even more were recorded, whereas in many of the outbreaks that have occurred during the past 20 years it has been possible to keep the mortality below 10%. This can only be done, however, if patients are admitted to hospital sufficiently early. Thus, in the 1947 epidemic in Egypt, the death-rate in one hospital was 9.3% among patients admitted after one day, 17.8% in those admitted after 2 days, and 37.1% in those admitted after 4 days. The mortality among patients coming from the immediate vicinity of the hospital was only 6.2%. While it is to be hoped that further improvements in treatment will be made, the real answer to the cholera menace remains the prevention and ultimately the eradication of the disease.

PSYCHIATRY IN THE MEDICAL CURRICULUM

Medical knowledge advances on a broad front year by year, and the sum total is now far beyond what any single person could possibly assimilate in a lifetime; with the result that fragmentation has occurred, each assimilable portion becoming the domain of specialists who, while expert in their own fields, may be totally or relatively ignorant of fields outside. This situation is fully recognized, but there is much controversy about how it should be remedied—a controversy closely bound up with the reform of the medical curriculum. The modern medical student (it is widely admitted) receives an education that splits medicine up into a series of more or less watertight compartments and does not lay sufficient emphasis upon the patient as a human being to whom illness may be an event of possibly only passing importance in his life. Not only is there a tendency for medical education to teach the student to see the patient as merely a case of this or that disease, but it does little or nothing to show him the contribution of the social sciences (sociology, social psychology, social and cultural anthropology) to the knowledge of man and their importance for medical practice.

With increasing recognition of the disadvantages of this system of compartmentalized medicine and awareness that many of the diseases that afflict man are not mere disorders of systems, there has been a reassessment of the status of psychiatry. As in the rest of medicine, so in psychiatry there have been great advances in knowledge, and psychiatry has become established as a fully developed specialty on its own. But it is also looked upon as a kind of leaven permeating the whole of medicine: by some as the philosophical department of medicine, by others as more of a catalyst helping specialists in other fields to bring the student to a better understanding of the human being as a whole.

The report [1] of a WHO Expert Committee on Mental Health [2] that met in Geneva from 13 to 17 June 1960 has just been published, the subject it deals with being the undergraduate teaching of psychiatry and mental health promotion. Psychiatry—it stresses—has attained its majority as a specialty: its scientific foundations have gradually been strengthened by advances in understanding of the function of the central nervous system and in medical psychology, a growing wealth of clinical experience, and progress in therapeutic methods (malaria therapy, insulin therapy, convulsant therapy, and psychopharmacological methods, not to mention the important advances in the field of psychotherapy). Where does this specialty come into the medical student's training? Clearly —the report holds—the student must acquire some knowledge of it so as to be able to deal with the strictly psychiatric problems he may be called upon to face. He must also absorb ideas and develop attitudes that are basic to his future role as a doctor. What training in psychiatry and in the promotion of mental health he is to receive will naturally depend on local circumstances: if he can as a practising physician always count on the help of specialists, stress will be put on the opportunities and facilities available for consultation and referral; if he has to deal with the vast majority of psychiatric cases himself, he must know more about the practical approaches and techniques of psychiatry. Again, if the compartmentalization of medicine in

[1] *Wld Hlth Org. techn. Rep. Ser.*, 1961, **208**.

[2] Members of the Committee: Dr S. Lebovici, France (Rapporteur); Dr J. Leme Lopes, Brazil; Dr A. S. Manugian, Lebanon; Dr D. G. McKerracher, Canada (Rapporteur); Dr H. Houston Merrit, USA (Chairman); Dr T. Muramatsu, Japan; Dr T. Ferguson Rodger, United Kingdom (Vice-Chairman). Secretariat: Dr M. Bleuler, Switzerland (Consultant); Dr D. Buckle, WHO Regional Office for Europe; Dr E. E. Krapf, WHO (Secretary); Dr Tsung-yi Lin, Taiwan, China (Consultant); Dr J. M. Mackintosh, WHO; Dr J. S. Peterson, WHO; Dr Tigani el Mahi, WHO.

the area in which he will practise is excessive the accent in training will be upon the whole personality of the patient; but if the teaching and the practice of medicine are not dehumanized in this way this holistic approach will not be needed so urgently and its overemphasis may indeed be resented.

The aim of instruction in psychiatry should be to teach the student to "recognize the main forms of psychiatric disorder and the presence of psychiatrically important factors in diseases of the body"; to "show the student to what extent his own attitude in dealing with patients and their families is a significant factor in his success or failure as a physician"; to convey the lesson "... that the history of a disease is only a small part of the life history of the sick person and that the manner in which the physician makes and communicates his diagnosis and prescribes and carries out his treatment always has an important influence on the mental state of the patient".

The student must be made to understand the physician's role in the prevention of psychiatric disorders, which derives mostly from his awareness of the patient as an individual and as a member of social groups. He must consequently be taught to appreciate the part he can play as an educator in health matters, particularly in the promotion of mental health and in relation to family environment and community attitudes to mental disorders. In this respect, the report states:

> "Mental health promotion can never be made effective by the psychiatric specialist alone. The collaboration of many others (internists, paediatricians, public health officers, nurses, social workers, teachers, social psychologists, journalists, etc.) is urgently required, but nobody has more opportunities or more responsibility in this field than the general practitioner; it may well be said that mental hygiene will remain an empty promise if the general practitioner is not enabled to act as its main agent in the community."

The best introduction to psychiatry in the medical curriculum is the presentation of the basic sciences by stimulating teachers who understand their relationship to the maintenance of mental health and the nature of the disturbances that lead to mental disorders. In anatomy, for example, it is not sufficient to dwell on anatomical structures and their fibre connexions; their phylogenetic development and their importance for nervous function and the evolution and structure of behaviour should also be shown in such a way as to help the student grasp the symptomatology of nervous and mental disease. In physiology stress should be placed on the relationship of cortical and subcortical structures to emotions and their expression, different states of consciousness, and the functioning of various organs; on disturbances in bodily function when the equilibrium of the nervous system is disturbed; on the electrical activity of the cortex in relation to electroencephalography; on the role of conditioned reflexes in the learning process; on the relationship of various parts of the cortex to reasoning and intelligence; and so on. Clinical neurology is of course in a special position because of the presence of so much neurological disorder in patients admitted to mental hospitals, and the student should certainly be acquainted with the basic techniques in neurological examination and with the symptomatology of the common neurological diseases.

Medical psychology and sociology should be ranked among the basic sciences for the teaching of psychiatry. If anatomy and physiology have emphasized constitutional and somatic factors excessively, the medical student should learn from psychology and sociology to appreciate the malleability of human personality and behaviour and realize that the patient is closely involved in his social and cultural background and community institutions. He will then see how many are the factors concerned in disease and so acquire a "comprehensive" approach to medicine. Psychology will help develop his powers of observation, teach him to describe what he observes, and show him how to listen to his patients objectively; and psychology and sociology together should enable him to understand his place in society and thereby improve the quality of his medical practice. The minimum requirements for the teaching of psychology and sociology are discussed in detail in the report.

What should be taught in psychiatry

Since the physician will encounter every type of psychiatric illness, the report recommends a broad selection of case material for undergraduate teaching, from non-psychiatric medical wards as well as from departments of psychiatry, family doctors' practices, child guidance clinics, homes for the aged, adult and juvenile courts, welfare agencies, etc. Every diagnostic category should be represented: the psychoses, the psychoneuroses, mental retardation, behaviour problems, addiction, psychosomatic disorders. The student should see long-term cases of the major psychoses as examples of chronic mental illness, and become acquainted with the emergency situations that sometimes arise so as to be able to give " psychiatric first aid ". No attempt should be made to hide the fact that current diagnostic groupings in psychiatry spring rather from a study of symptoms than from an understanding of causes. The student should have an honest appreciation of the limitations of present-day classification and its need for future revision. In learning how to diagnose cases, the student should in particular be wide awake for the tragically important signs and symptoms indicating suicidal tendencies.

The student must learn that he will be responsible for the psychiatric treatment of his patients, especially in areas where psychiatric specialists are scarce. The Committee recommended that he be taught basic psychiatric treatment, including psychotherapy, somatic therapies, and environmental manipulation—he must learn how to lower the environmental tension surrounding his patient, and know who can help him in this task (the public health nurse, the social worker, the clergyman, etc.). He must be acquainted with the specialized services available and have some idea of the law relating to commitment procedures, penal and civil responsibility, and matrimonial problems. He should understand that the management of psychiatric patients in a medical practice is time-consuming and requires careful budgeting of his time and a system of priorities. He should also be brought to realize that there are limitations to psychiatric therapy: that he may have to " carry " many emotionally sick patients for indefinite periods with little apparent sign of improvement.

The Committee recommended that at least 60 hours be devoted to the formal teaching of psychiatry and mental health promotion, and that the student spend at least one month full-time in a clinical clerkship that should include actual case-work with both in- and out-patients. The following subjects should be covered:

1. History taking (techniques of the psychiatric interview including consideration of its therapeutic significance)
   Psychiatric examination and diagnostic method
2. Symptomatology, including concept of normality and identification and assessment of symptoms and subtle and gross signs of abnormal behaviour
3. Etiology of mental disorder, giving balanced presentation of its multifactorial causation (genetic, somatic, psychological and social)
4. Types of mental disorder: [3]
   - Major psychoses
     - affective psychoses
     - schizophrenias
     - organic psychoses
     - senile psychoses
     - symptomatic psychoses including toxic psychoses
   - Mental retardation and psychiatric aspects of epilepsy
   - Behaviour disorders
     - " sociopathic " personalities
     - alcoholism
     - drug addiction
   - Psychoneuroses
   - Concept of psychosomatic diseases
   - Children's behaviour problems
   - Adaptation difficulties of the aged
5. Principles of psychiatric treatments:
   - Psychotherapy
   - Somatic treatment (including drug therapy)

[3] For each type of disorder the symptomatology, etiology, treatment and management should be presented.

Socio-therapy
Use of community resources
" Psychiatric first aid "

6. Principles of psychiatric prevention and mental health promotion:
   - Prevention of mental disorder (primary, secondary and tertiary)
   - Mental health promotion in modern society
   - Role of the family physician in mental health promotion, especially in childhood
   - Child guidance and school mental health
   - Concept of iatrogenic disease
   - Role of the general practitioner in mental health education of the public
7. Principles of forensic psychiatry

Additional experience might be given to the student by means of child guidance clinics, collaboration in in-patient and out-patient case studies, community services (including domiciliary services), psychological testing, group work, and participation in research.

Methods of teaching

Having dealt with the content of the course, the Committee turned its attention to ways and means of teaching psychiatry and the promotion of mental health to undergraduates. Growing interest is being shown in collaborative teaching, which encourages cross-fertilization of the thoughts and experiences of different disciplines, brings out the importance of psychosocial factors in diseases formerly thought to be purely somatic, provides a broader selection of cases, and avoids unnecessary repetitions. These are obvious merits, but there are also disadvantages and dangers; collaborative teaching is expensive both in money and in manpower, and there is a risk that the student may be confused by the different views of all the teachers.

As to the actual order of presentation of the material in clinical psychiatry, a case could be made for presenting either the psychoses or the neuroses first. The student will recognize the psychotic patient as an obviously sick person, but may find the experience traumatizing or conclude that psychiatry is a specialty lying outside general medical practice. The neuroses are conditions that he will meet much more frequently in practice, but he may regard them as trivial and under-rate psychiatry as a consequence.

The report reviews teaching techniques: the lecture, small group teaching, individual clinical work with patients, tutorial teaching and preceptorship, and research activities. The choice of method should be decided by the individual teacher according to his own teaching experience and the facilities available. The decisive factor—the Committee emphasized—in the success of a teaching programme is the quality of the teacher, his enthusiasm, ability, and personal and scientific integrity. Ideally the teaching of psychiatry should be done in a well-equipped department of psychiatry in close contact with a general hospital with out-patient departments. Another point worthy of emphasis is that there should be a periodic evaluation of the teaching programme, either by the entire teaching staff or by outside experts. The reactions of the students during and after the course will help in this evaluation, and the institution of an examination in psychiatry will also play an important part, since:

> " Students . . . will husband their efforts for those subjects in which success or failure will determine their progress towards eventual qualification. Only if their curiosity is aroused will they spend much time on a subject in which they are not to be examined. Once an examination in a subject is an accepted part of the curriculum it takes its place with others in the same category. There is no evidence that a subject is less popular because it is associated with a compulsory examination, but until a subject is made compulsory in this way the tendency is to allot it a very minor place in the curriculum."

The place that psychiatry and mental health promotion should occupy in the preclinical and clinical years of the student's medical education, staff requirements and the selection and training of teachers for the programme envisaged, and WHO's role in assisting the development of instruction in these subjects in the undergraduate curriculum are other topics examined by the Committee in this report.

Notes and News

Inter-Regional Smallpox Conference

Endemic smallpox foci of varying sizes are still found in a number of African and Asian countries, and in 1959 a conference was held in Brazzaville by the WHO Regional Office for Africa to discuss smallpox eradication campaigns in Africa. This has now been followed up by an Inter-Regional Smallpox Conference sponsored and organized by WHO for Asian countries. The Conference was held in New Delhi from 14 to 19 November 1960, and fourteen countries in the South-East Asia, Western Pacific, and Eastern Mediterranean Regions participated. The purpose of the conference was to discuss the organization, extension and co-ordination of national smallpox control programmes on both regional and inter-regional levels.

Among the epidemiological questions considered were the degree of endemicity of the disease in different areas, factors influencing the persistence of endemicity, and difficulties encountered in controlling smallpox and its spread in infected areas. There was an exchange of ideas on the organization and administration of an eradication campaign, taking into account the way in which organizational problems may vary from country to country and sometimes in different parts of the same country. Criteria for the evaluation of campaigns were reviewed.

In a number of countries, it has been found useful to co-ordinate smallpox eradication campaigns with other health campaigns. The Conference discussed this procedure, which has proved both economical and effective, especially in countries handicapped by a shortage of medical and paramedical personnel for preventive work.

Types of vaccine and their uses in different areas were considered, as well as vaccine production methods and the problem of maintaining vaccine potency. Vaccination techniques and the training of vaccinators were also discussed.

The social aspects of eradication campaigns in different areas were studied, as well as the co-ordination of control efforts at both national and international levels.

Finally, the application of quarantine control measures under the International Sanitary Regulations was reviewed. Cases of the reintroduction of smallpox into countries from which the disease had already been eradicated led the Conference to consider the question of improving the application of the quarantine control measures prescribed by the International Sanitary Regulations to land, sea and air travellers from infected areas.

Dried smallpox vaccine production

A course on dried smallpox vaccine production was held by the WHO Regional Office for Africa at Yaba, Nigeria, from 14 to 26 November 1960. For mass vaccination programmes, particularly in tropical and remote rural areas, dried vaccine is the most suitable. Although this type of vaccine is expensive, increased laboratory production should result in a decrease in price.

The Federation of Nigeria is at present the only territory in the African Region producing dried smallpox vaccine to an amount of 500 000 doses annually and possessing a plant capable of producing up to 2 000 000 doses annually. The vaccine is produced at the Government laboratory in Yaba, where the course was held. There were 8 participants—2 from Nigeria, and the remaining 6 from Ghana, Indonesia, Iran, Kenya and the Provinces of Syria and Egypt (United Arab Republic), respectively. The method of vaccine preparation taught was that practised at the Lister Institute, Elstree, England. This method was presented as an indication of one set of procedures that might be followed in the preparation of dried smallpox vaccine, not as a set of hard and fast rules. The Lister Institute's

vaccine has proved to have excellent keeping qualities at high environmental temperatures, it can be distributed unrefrigerated by post, and it can be safely stored in a domestic refrigerator. It was made clear to participants that the final product should pass recommended international and national requirements as regards bacterial and virus content. It was also stressed that the nature of the initial virus-containing material prepared in different centres varies widely; for this reason, the greatest possible flexibility in the preparation of the vaccine has to be maintained.

Rehabilitation in leprosy

A Scientific Meeting on Rehabilitation in Leprosy, sponsored by WHO, the Leonard Wood Memorial (American Leprosy Foundation), and the International Society for the Rehabilitation of the Disabled, was held in Vellore, India, from 21 to 29 November 1960. It was attended by leading scientists and plastic and orthopaedic surgeons from a number of countries, including India, Japan, Mexico, the Philippines, the United Kingdom, and the USA.

The meeting agreed that it is impossible at present to ascertain the exact prevalence of leprosy, but that a conservative estimate would put the number of cases in the world at 10 million. Of these, fewer than 5% can be accommodated in existing institutions; the vast majority are living in their own homes, and probably not more than 20% are receiving treatment of any kind. According to the second report of the WHO Expert Committee on Leprosy,[1] about 25% of all leprosy patients suffer from some degree of physical disability.

The causes and cures of the various types of deformity were discussed. While deformities of the hands and feet lead to disability for useful employment, facial deformities such as collapse of the nose, loss of the eyebrows and sagging face are also of particular importance from the point of view of rehabilitation. It was agreed that all these deformities are to a large extent preventible, while much can be done for advanced cases by corrective surgical treatment.

The importance of treating leprosy alongside other diseases, and not as a disease apart, was stressed by the meeting, together with the need for large-scale education campaigns to combat the widespread and deep-rooted prejudices with regard to leprosy that form the greatest single barrier to rehabilitation. The public should be taught that leprosy is curable and that the deformities that remain after cure do not necessarily mean that the disease is still active. Equal stress was laid on the education of the patient himself. He should know what precautions to take to avoid deformities, and rehabilitation should begin as soon as the disease is first diagnosed. All patients must be helped to adjust themselves to the limitations imposed by the disease and to the expectation of returning to full and normal life. It was felt that no rehabilitation programme could be a substitute for this basic education by medical advisers. The great majority of patients should complete their rehabilitation with no other outside help and without admission to any institution.

Seminar on community water supplies

The provision of community water supplies as a factor in health and economic development in the African and Eastern Mediterranean Regions was the theme of a seminar held in Addis Ababa, Ethiopia, from 28 November to 3 December 1960, under the joint auspices of the WHO Regional Offices for Africa and the Eastern Mediterranean. The principal topics discussed were: the importance of water supplies in the community, and the role of WHO in promoting and organizing programmes for the provision of such supplies throughout the world; experience in the development of water supplies (comparison of various patterns of organization; the selection of organizational plans to suit the needs of each individual country); international co-operation in water supply programmes; planning, financing, operation and management of water supply systems; methods of supplying engineering services.

This seminar was attended by representatives of 17 countries in the two regions and water supply experts from several international bodies.

[1] *Wld Hlth Org. techn. Rep. Ser.*, 1960, **189**.

Public health laboratory services

A seminar on public health laboratory services was held at the WHO Regional Office for the Western Pacific, Manila, Philippines, from 5 to 16 December 1960. Its aims were to determine the role and the problems of public health laboratories, particularly in countries of the Western Pacific Region; to formulate guiding principles for the planning, organization and operation of public health laboratory services; to explore ways of employing national and local resources and co-ordinating existing facilities; and to promote means of using assistance from bilateral and international agencies.

For years it has been recognized that, in many areas, the provision of adequate laboratory services has not kept pace with the expansion of health services and hospitals. The need for laboratories attached to health services has been repeatedly emphasized by professional workers, who have cited the difficulties arising from the changing clinical and epidemiological features of many of the communicable diseases and stressed the value of such laboratories in the clinical diagnosis and management of some non-communicable diseases of public health importance, in environmental sanitation, and in other routine public health activities. The seminar was organized to enable health workers concerned with the administration of public health services to meet technical and service staff actively involved in the provision and application of laboratory services, so that they might discuss their respective problems and make a realistic assessment of the needs of, and resources for, the laboratory services in terms of the technical and economic development of the countries concerned.

The participants in the seminar included laboratory directors, senior public health administrators, and laboratory experts from the following countries and territories: Australia, China (Taiwan), Fiji, Japan, Republic of Korea, Federation of Malaya, New Zealand, North Borneo, the Philippines, the Ryukyu Islands, Sarawak, Singapore, the Territory of Papua and New Guinea, Viet-Nam and Western Samoa. Papers were presented by consultants from China (Taiwan), the USA and WHO Headquarters. By arrangement with the Philippine Department of Health, the participants were able to study the operation of laboratory organizations at national, regional and local (city) levels, and the structure of the clinical laboratory of a general hospital in Manila and of a biological laboratory operated by the Department of Health.

Mental health in the Eastern Mediterranean Region

A Group Meeting on Mental Health was held in Alexandria from 19 to 23 December 1960, under the auspices of the WHO Regional Office for the Eastern Mediterranean. Its aim was to encourage increased action in the field of mental health on the regional level and a closer co-ordination of public health and mental health activities. Many urgent mental health problems in the area are in fact also public health problems, being linked, for example, with malaria and other febrile states, malnutrition and the abuse of drugs.

Other special mental health problems of the Region arise from mass migration from rural to urban areas, industrialization, the breaking up of the tribal system, and the weakening of traditional community and family ties. In fact, the rapidity of social change in the Eastern Mediterranean countries has brought about a situation in which anxiety, neurosis, and other mental disorders are likely to be more prominent than in countries undergoing slower and more gradual change.

The meeting was attended by leading psychiatrists from Cyprus, Iran, Iraq, Lebanon, Pakistan, Sudan, Tunisia, and the United Arab Republic.

Auxiliary sanitation personnel in India

A Conference on the Training and Utilization of Auxiliary Sanitation Personnel was held in New Delhi from 27 to 31 December 1960, under the auspices of the WHO Regional Office for South-East Asia and the Government of India. Public health experts responsible for sanitation services in different Indian States and WHO sanitation personnel working in the country took part in the Conference, the object of which was

further evaluation of the training and utilization of sanitation personnel and the adoption of an improved approach to future rural sanitation activities in the country.

In India, the development of rural sanitation work is the responsibility of rural health centres, primarily through the medium of their sanitarians. Sanitarians are also included in a team of technical advisers dealing with larger communities, but their activities are not fully integrated with those of health centre sanitarians. At present, only some 15% of the time of auxiliary sanitation personnel in India is actually given to sanitation activities: in general, they are employed in such activities as mass immunization, the collection of biostatistical data, and other work of the health centres not directly related to sanitation. In different States different designations are used for environmental sanitation personnel; there is considerable disparity in both content and duration between their training programmes; and they are frequently required to study subjects not related to environmental sanitation. Sanitation work is generally limited to excreta disposal and the rural water supply, other important rural sanitation services usually being inadequate. Finally, opportunities for the professional development of sanitation personnel do not exist.

Present methods of utilization and training of sanitarians, sanitary inspectors, health assistants, health inspectors and other auxiliary personnel were discussed at the Conference. The advantages of a uniform designation were considered. An attempt was made to define how sanitation personnel should be utilized in the field, and the introduction of a nation-wide standard training programme was envisaged. Recognizing that the development and improvement of environmental sanitation are cardinal health requisites in India, the Conference discussed the resources necessary to develop a suitable system, including the provision of a satisfactory career for workers in the field of environmental sanitation.

At a time when the country is engaged in the parallel activities of housing development and community water supply programmes, the Conference afforded an opportunity for the furtherance of co-ordination in environmental sanitation work. It is hoped that it will encourage similar initiatives in other countries of the Region.

Midwifery in Syria

Indigenous midwives receive a four-month training course at the WHO Rural Health Centre, Sakba, near Damascus, in the Province of Syria, United Arab Republic. They learn about the sterilization of instruments and about modern methods of delivering babies, and at the end of their course they sit an examination and receive a certificate. When they leave they are given a midwifery kit presented by UNICEF, and message flags of three colours. A white flag means that the delivery is normal, a red that there is haemorrhage, and a yellow that there are difficulties in labour; any relative of the patient can give a message to the health centre by taking the appropriate flag there. This provides an important means of communication in a country where the local midwife is often illiterate and there are few or no telephones in the rural areas.

These indigenous midwives are trained alongside younger women who are being educated as modern, up-to-date helpers in childbirth. This system has prevented resentment on the part of the older midwives, who co-operate willingly with the new. A 14-month course will soon be started for the training of the younger generation of midwives.

A tuberculosis survey in Pakistan

Tuberculosis ranks among top-priority health problems in Pakistan; national statistics place the number of people affected at about 1 200 000. BCG vaccination campaigns were initiated with WHO and UNICEF assistance and are now being carried on by the Government of Pakistan, the number of persons tested (24.5 million) and vaccinated (11.7 million) being the second largest for any country in the world.

A 4-man WHO team, along with national counterparts, is carrying out a sample survey of tuberculosis in West Pakistan to assess the full extent of the disease and to help formulate control measures against it. The team will carry out surveys of sample population groups in all the nine divisions of West and East Pakistan and is expected to complete its work in two years' time. It is being assisted by a 21-man team from

the West Pakistan health services, including a doctor, a statistician, and nurses. Groups of people from all social levels and age categories are being tested, by photofluorography and sputum examination and with tuberculin. It is hoped that the extent and epidemiological pattern of tuberculosis in Pakistan will be revealed by the information collected, which will be processed by the WHO-assisted Tuberculosis Epidemiological and Statistical Centre in Karachi.

WHO membership

The Republics of Chad, Cyprus and Somalia and the Malagasy Republic have become full Members of WHO. This brings the number of full Members up to 104.

All four countries became eligible for full membership of the Organization on gaining their independence last year. Cyprus had been an Associate Member since May 1960.

People and Places

Epidemiological studies in Indonesia

For the past two years, WHO has been helping the Government of Indonesia to set up an epidemiological unit in the Ministry of Health in order to define the prevailing disease pattern in the country, thus permitting appropriate control measures to be planned, as well as strengthening public health administration, and facilitating the work of laboratory and health statistics services. Dr D. Sovrlich, of the Hospital for Infectious Diseases, Belgrade, has been appointed by WHO to continue this project. Dr Sovrlich, who studied medicine in Yugoslavia, has a diploma in tropical medicine and hygiene from the School of Tropical Medicine in Calcutta, and has experience of communicable disease control in various parts of India.

Health education

Dr Beryl Roberts, Associate Professor at the School of Public Health, University of California, has been appointed WHO health education consultant to the All-India Institute of Hygiene and Public Health, Calcutta, for a period of two months. During this time she will be particularly concerned with the further planning of health education training at the Institute. Dr Roberts is a former staff member of WHO, and served as a WHO consultant in Indonesia for a period of six months in 1957.

Training in environmental sanitation

Mr John F. Blaeske, Senior Assistant Sanitarian to the United States Public Health Service, New Mexico, has been appointed sanitarian to a WHO environmental sanitation training project in the Philippines. The general aim of this project is to help the Philippine Government strengthen and develop its training services and programmes in this field.

Of American nationality, Mr Blaeske has been working since 1957 with the United States Public Health Service and has spent two years in Honduras as adviser to the Ministry of Health.

Hospital architecture

The Government of Jordan has requested the assistance of an expert architect for the construction of a new 100-bed children's hospital in Amman, where a maternal and child demonstration and training centre was established with help from WHO in 1954. Mr R. Llewelyn Davies, Professor of Architecture, London University, was assigned to develop plans for the new hospital and visited Amman for this purpose in December 1960. Mr Davies has undertaken previous assignments for WHO, particularly in connexion with the planning of psychiatric hospitals.

New Secretary-General of PASB

Dr Victor Arnold Sutter, of El Salvador, was recently appointed Secretary-General of the Pan American Sanitary Bureau (PASB), which acts as the WHO Regional Office for the Americas. Dr Sutter received his M.D. degree from the

National University of El Salvador, and his M.P.H. degree from Johns Hopkins University, Baltimore, Md. Following appointments as Inspector General of Health and Director General of Health in the National Health Service of El Salvador, he served as Chief Medical Officer of the United Nations Relief and Rehabilitation Administration in China, and as a public health officer of the Institute of Inter-American Affairs. From 1950 to 1956 he was attached to WHO Headquarters, first as Director of the Divisions of Communicable Diseases and Public Health Services, then as Assistant Director-General in charge of Advisory Services. He has also served as a member of the WHO Expert Advisory Panel on Public Health Administration. From 1956 to 1958, he was Minister of Health and Welfare in El Salvador.

Appointments at WHO Headquarters

Dr W. P. D. Logan, Chief Medical Statistician, General Register Office of England and Wales, since 1951, has been appointed Director-Consultant of the Division of Health Statistics, WHO Headquarters, for a period of eleven months. Dr Logan was head of the WHO Centre for Classification of Diseases in London for nine years, and has been a member of the WHO Expert Advisory Panel on Health Statistics.

Dr V. N. Patwardhan, Director of the Nutrition Research Laboratories, Hyderabad, India, from 1946 to 1960, has been appointed Nutritiou Research Officer at WHO Headquarters. Dr Patwardhan has had wide experience of nutrition work, and has served on several national and international committees, including the FAO/WHO Expert Committee on Nutrition.

Scholarship in cardiology

The Swedish National Association against Heart and Chest Diseases will award a research scholarship to a non-Swedish cardiologist this year, and WHO has been asked to assist in choosing a suitable candidate. The stipend will amount to 25 000 Swedish crowns for one year, which should also cover travelling expenses.

Candidates should have proved ability in research, should be engaged in actual research in the field of cardiovascular diseases and should be interested in studying a particular problem in Sweden. They should not be more than 45 years of age.

Each applicant is expected to present a brief *curriculum vitae* with emphasis on research activities, together with details of proposed studies in Sweden. Reprints of original work should be attached. Candidates should also be endorsed by their respective institutes (or clinics), which should ensure posts and research facilities for them on their return.

Applications should be sent to Chief, Cardiovascular Diseases, World Health Organization, Palais des Nations, Geneva, Switzerland to arrive, at the latest, by the end of March 1961. It is expected that the scholarship will be awarded in June 1961, and it is hoped that the candidate selected will be able to start in September 1961.

Review of WHO Publications

Bulletin of the World Health Organization, 1961, Volume 24, Number 1 (pages 1-128). Price: 10/–, $2.00, or Sw.fr. 6.—.

The majority of the articles in this issue of the Bulletin are concerned with two major zoonoses —leptospirosis and brucellosis—which have been the subject of intensive investigations co-ordinated by WHO and FAO during the past several years. In order to facilitate work in these fields a number of FAO/WHO Brucellosis Centres and Leptospirosis Reference Laboratories have been established in different parts of the world to serve the needs of their respective regions.

The first three articles, from the Institute of Medical Research at Kuala Lumpur, are part of a series of reports on investigations on animal leptospirosis in Malaya. Human leptospirosis has been shown to be an important cause of febrile illness in that country, and studies have therefore been undertaken to determine its wild animal reservoirs and the factors influencing the spread of infection from them to man and domestic animals.

The laboratory diagnosis of leptospirosis is fraught with difficulties, and the paper on this subject, from the Istituto Superiore di Sanità in Rome, will, it is hoped, prove of assistance to public health laboratories and research workers. This is one of a series of articles on the laboratory diagnosis of various diseases which are published from time to time in the Bulletin. Two others in this issue deal with gastro-enteritis due to *Escherichia coli* (from the Children's Hospital in Birmingham and the Salmonella Reference Laboratory in London) and with brucellosis (from the Medical Research Institute, General Hospital, Mexico, D.F., which serves as one of the FAO/WHO Brucellosis Centres).

There are also a number of other studies on brucellosis and the *Brucella* organism. Of particular interest is the article from the Gamaleya Institute of Epidemiology and Microbiology in Moscow on the use of live vaccine for the vaccination of human beings against brucellosis. Human vaccination against this disease has been carried out on an intensive scale in the USSR and the results are of great importance for the possible use of human vaccine in other countries where the disease in man presents a severe problem, notably in Mediterranean lands, Latin America and Asia.

Two studies are on problems in the bacteriology of *Brucella*. One, from the Institut Pasteur, Tunis (another FAO/WHO Brucellosis Centre), deals with deterioration in the bacteriostatic quality of the dye thionin, which is used for the identification of *Brucella* strains. The other, from the Michigan Agricultural Experiment Station, presents results of work on various *Brucella* strains from the standpoint of differences in the enzymatic activity affecting sulfur metabolism. These studies provide new information on the question of speciation of the *Brucella* organism, which has held the attention of *Brucella* bacteriologists for many years.

The development of effective methods for the control of trachoma has been a subject of considerable interest for WHO, which has assisted carefully controlled therapeutic trials in several areas of the world; the Organization has also assisted trachoma research centres in laboratory studies. Recent reports on the isolation of the causative agent of trachoma and on the possibility of maintaining it in serial culture have greatly stimulated virological studies on this disease.

Two papers from the Virological Research Laboratory at the Ophthalmological Centre, Tunis, are presented. The first reports on the isolation of twelve strains of trachoma virus from the conjunctiva of patients and the maintenance of these strains by serial culture in the yolk sac of embryonated eggs. The second deals with the sensitivity to ten different antibiotics of trachoma virus cultured in embryonated eggs. The virus utilized was shown to be sensitive to several antibiotics but not to streptomycin, and this may be one of the reasons for the difficulties encountered in the isolation and culture of trachoma virus when antibiotics other than streptomycin are used to prevent bacterial contamination.

It has been known for many years that enzymes of bacterial origin destroy the virus receptors of erythrocytes—a phenomenon of importance in the laboratory as haemagglutination-inhibition tests are frequently used in the study of several viruses. In the experiments reported from the Ivanovski Institute of Virology in Moscow, the polysaccharide-lipid antigens of *Salmonella typhi* strains containing Vi-antigen were able to reduce the agglutinability of erythrocytes by myxoviruses or Stewart-Eddy polyoma virus. The effect of this antigen, however, is not of an enzymatic nature and does not seem to be linked with the destruction or blocking of the virus receptors of the erythrocytes.

Finally, a brief paper from India reports on an outbreak of poliomyelitis in the Andaman Islands in 1957, giving detailed results of neutralization tests on the sera of patients and their contacts.

Expert Committee on Addiction-Producing Drugs : Eleventh Report (*World Health Organization Technical Report Series*, No. 211), Geneva, 1961, 16 pages. Price 1/9, $0.30, or Sw. fr. 1.

In its eleventh report the WHO Expert Committee on Addiction-Producing Drugs [1] recommends that the following substances should be subject to the provisions of the 1931 Convention in respect of addiction-producing drugs comparable to morphine: clonitazene, 1-cyclohexyl-2,2-di-diethylaminomethyl-1-phenylethane, diampromide, diphenoxylate, etonitazene, hydromorphinol, phenampromide and phenoperidine. Evidence in regard to two analgesic benzodioxane derivatives and to ethoheptazine indicated that these compounds were not to be regarded as addiction-producing drugs. Exemption from the provisions of international control was recommended in favour of two preparations containing diphenoxylate, a new constipating agent, but the Committee was unable to support the request for exemption in favour of dextro-phenomorphan.

The Committee was concerned about reports on the abuse of amphetamines and amphetamine-like substances contained in weight-reducing medicines and emphasized the need for appropriate control measures on a national level to prevent such abuse. Attention was also drawn to the need to watch closely the development of new psychically active compounds that might be abused by narcotic addicts, as has already occurred in the case of (-)-1-dimethylamino-1,2-diphenylethane (SPA) in Japan. There is a strong need for improvement in regard to the information given on the possibilities of addiction liability of new drugs, particularly where analgesic and antitussive properties are claimed.

In response to an invitation from the Economic and Social Council, the Committee outlined the procedures by which the addiction-producing properties of a drug are established, but a precise code of practices cannot be drawn up at the present time for reasons inherent in the problem itself.

The Committee was not of the opinion that there is at present any case for making cannabis available for the extraction of antibiotic substances and considered that the prohibition or restriction of the medical use of this plant should continue to be recommended by the international organs concerned.

With regard to the treatment of drug addicts, the Committee was in favour of a proposal that addicts should be committed to the care of a medical panel, as is done in the case of mental patients in general. This measure is intended to ensure adequate and complete treatment, but not to replace penalties for violations of the law.

The Undergraduate Teaching of Psychiatry and Mental Health Promotion : Ninth Report of the Expert Committee on Mental Health (*World Health Organization Technical Report Series*, No. 208), Geneva, 1961, 36 pages. Price: 1/9, $0.30, or Sw. fr. 1.—.

This report is reviewed in the article on page 106.

Aspects of Public Health Nursing, by various authors, Geneva, 1961 (*Public Health Papers*, No. 4), 185 pages. Price: 8/6, $1.75, or Sw. fr. 5.—.

This publication is discussed in the series of articles starting on page 79.

[1] Members of the Committee: Dr N. B. Eddy, USA; Dr L. Goldberg, Sweden (Chairman); Dr G. Joachimoglu, Greece; Dr J. La Barre, Belgium; Dr T. Masaki, Japan (Vice-Chairman); Dr B. Mukerji, India; Mr J. R. Nicholls, United Kingdom (Rapporteur); Dr V. V. Vassilieva, USSR. Representatives of the United Nations: Mr G. Yates; Mr A. Lande; Mr H. Jhabvala. Representative of the Permanent Central Opium Board and the Drug Supervisory Body: Mr L. Atzenwiler. Secretariat: Dr H. Halbach, WHO (Secretary).

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